Grand Valley State University
ScholarWorks@GVSU

Honors Projects | Undergraduate Research and Creative Practice

1-1-2011

Asperger Syndrome: A Review

Trevor J. Essique
Grand Valley State University

Follow this and additional works at: http://scholarworks.gvsu.edu/honorsprojects

Recommended Citation
Essique, Trevor J., "Asperger Syndrome: A Review" (2011). *Honors Projects.* Paper 80.
http://scholarworks.gvsu.edu/honorsprojects/80

This Open Access is brought to you for free and open access by the Undergraduate Research and Creative Practice at ScholarWorks@GVSU. It has been accepted for inclusion in Honors Projects by an authorized administrator of ScholarWorks@GVSU. For more information, please contact scholarworks@gvsu.edu.

GRAND VALLEY STATE UNIVERSITY – FREDERIK MEIJER HONORS COLLEGE

Asperger Syndrome

A Review

Trevor John Essique - Faculty Advisor: Bryan Bolea

Winter 2011

Index

Introduction into Autism ---------- Page 2

Asperger Syndrome: A Brief History ---------- Page 4

Characteristics ---------- Page 7

Problems in School ---------- Page 11

Treatments ---------- Page 15

Conclusion ---------- Page 18

References ---------- Page 20

Introduction into Autism

Autism is a behaviorally defined neurobiological disorder. It is characterized by impairments in social communication, interaction, imagination, with a restricted range of interests and often stereotyped repetitive behaviors and mannerisms. Autism can be characterized by mild to severe intellectual disability. Furthermore, autism is often characterized by sensory hyposensitivities or hypersensitivities to environmental stimuli. This disorder is developmental and changes over time. A reliable diagnosis can be made between 2 and 3 years of age (Baird, et al., 2003). Symptoms vary between individuals diagnosed with autism, and the main impairments can vary greatly from person to person (Wing, 1988).

While there is no exact biological test for autism, there is considerable research into a finding a genetic factor to the disorder. The rate of concordance amongst monozygotic twins is around 60 percent, with a much lower rate for dizygotic twins (Rutter, et al., 1999). The prevalence of autism has been increasing within the past few years. A study done by Fombonne (2003) identified 3 factors for this increase: a change in the concept of autism as a spectrum disorder rather than a categorical condition, changes in diagnostic methods, and the inclusion of children with attention deficit hyperactivity disorder, Tourettes, or tuberous sclerosis as also having autistic spectrum disorder. The prevalence of autism is approximately five to six per one thousand in younger children.

Identifying autism can be reliably made around age 2 and 3 years, but a study by Howlin (1997) found that most parents could identify the condition by 18 months. Another study found that some parents were able to visibly see signs of autism as early as their children's first

birthday (Osterling, 1994). Higher functioning children with autism usually do not show any behaviors until introduced into a school environment around four or five years of age (Le Couteur, et al., 2003). Autism is a life-long disorder, and the impairments caused by the disorder, especially verbal IQ , predict the subject's ability to live independently in the future (Howlin, 2000).

Asperger Syndrome: A Brief History

Asperger Syndrome is a chronic neurodevelopmental disorder that is characterized by impairments in social interaction, communication, a restricted range of behaviors or interests, and AS presents without an intellectual disability. In 1944, an Austrian pediatrician, Hans Asperger, had written about four boys who had interested him because they had difficulties relating to their peers. At this same time, another psychiatrist was documenting similar children and coined the term infantile autism. In 1981, Wing, a child psychiatrist, introduced Asperger's Syndrome into the English scientific community. She described 34 cases of people who had a clinical presentation similar to the children from Asperger's study in 1944. She proposed certain modifications to Asperger's first diagnoses. Asperger stated that the disorder did not present itself until after 3 years of age, but Wing showed that difficulties could be examined in the first two years of life (Wing, 1981).

Before being accepted as a disorder in the DSM, Asperger Syndrome was usually considered a mild form of autism, a manifestation of autism in people with normal intellectual ability, a higher verbally functioning form of autism, or a "socially motivated" form of autism (Volkmar, 2008). A major issue facing the diagnoses of Asperger Syndrome is whether or not the disorder is different than autism and/or pervasive developmental disorders not otherwise specified. When the disorder was in a clinical trial for the inclusion into the DSM, the researchers found that AS differed from both of the previously mentioned disorders with an increased severity of social difficulty (Volkmar, 1994). This study however did not help satisfy the debate, but offer a change in the criteria for diagnosis. In the DSM it is considered a

pervasive developmental disorder that differs from autism in terms of intellectual disability, age of onset and number of communicative impairments that are absent in AS.

One of the biggest issues that the DSM contains for AS is the precedence rule, which means autism takes priority in the diagnostic hierarchy. Mayes, Calhoun and Crites (2001) argue that AS becomes a near impossibility to diagnose, and therefore should not even exist. When the subject's developmental impairments are vague, the diagnosis is always leaning towards autism over Asperger Syndrome. Harvey Molly and Latika Vasil (2002) argue that AS is a neurological difference that has been socially constructed into a disorder. Miller and Ozonoff, (2008) argue that AS should be seen as having a relationship with autism, and therefore an examination of external validity is not important. They theorized that AS is nothing more than high-IQ autism and that separate names for the disorders are not warranted. In AS's inclusion into the DSM, they de-emphasized the importance of communication impairment in favor of the social and behavioral problems. However, Asperger and Wing argued that the communication impairment is an essential problem characteristic of AS (Volkmar, 2008).

One aspect that remains unclear is the differences between individuals that have AS. Some argue that the differences are based on the severity of the symptoms (Ring, et al, 2008), while others argue that the differences are phenotypically based (Ghaziuddin, 2008). For example, Ghaziuddin would argue that the differences between subjects are based on their different ritualistic behaviors and/or the features of their communication impairments. Both of these differences have been reflected in every day clinical practice as well as research studies, and therefore, the results have failed to reach any concrete conclusions in either direction.

Bruce Sabian, a write for the Asperger Association of New England wrote “A draft of the **Diagnostic Statistic Manual V (DSM-5)**, posted in February 2010 on the American Psychiatric Association’s (APA) DSM-5 web site for public comment, proposes eliminating the diagnosis of “Asperger’s Disorder,” subsuming it without further identification, along with Autistic Disorder, Childhood Disintegrative Disorder (CDD), and PDD-NOS, into a broad new diagnosis of “Autism Spectrum Disorder” (ASD).” (ANNE, 2010). Furthermore, Sabian, believes that this will result in an under-diagnosis of Asperger Syndrome in the coming years.

Characteristics

Social Difficulties

Individuals with Asperger Syndrome do not shy away from social situations, like many people with social difficulties. The individuals tend to socialize with peers in odd and very self-centered ways that show their lack of understanding of social rules, especially reciprocal interactions (Bowler, 1992). Gross (1994) found that children with AS are very egocentric and try to talk about their obsession with a particular topic any time they are able to interject. These children may persevere on their topic of interest and offer highly detailed, fact based monologues without being aware of the listener's interest in their conversation (Myles & Simpson, 1998). Developmental problems with verbal and non-verbal symbol use may also cause their failure to maintain positive social interactions (Choi & Nieminen, 2008). From the view of an outsider, people with AS may seem either awkward, or overly friendly and intrusively talkative (Wing, 1996). Portway & Johnson (2003), interviewed parents of children with AS and found a commonality that their children tended to be alone most of the time. The other children did not invite them over to play, and when they were all together, the other children would avoid interacting with their children. Carrington & Graham (2001) also found that when their children were younger, they were excluded from playing with other children. The parents noted that their children tended to be hyperactive and over-talkative with the other children.

Suicide

Ghaziuddin (2005) pointed out that suicide attempts are not uncommon in people with AS. Furthermore, he went on to state that suicidal behavior occurs more commonly in adults with AS than is generally recognized. The main research focuses on children and adolescents (Fitzgerald, 2007). For most persons with AS, suicidal thoughts are the strongest during adolescence and early adult life (Gillberg, 2002). Gillberg also pointed out that exploratory group therapy lead to attempted suicide for many persons with AS because of their difficulties with interpersonal interaction.

Differences in Infancy

Interviews with parents discovered that they noticed problems in early infancy, but not severe enough to indicate that their child was suffering from any developmental disorder. Parents reported that the children were more serious than the average child, and they did not smile or coo very often. Furthermore, some parents reported that their children tended to focus on a particular toy and would not be happy without the toy. Finally, when the child was distressed, comfort only was obtained when the child was not being given attention from either parent. In conclusion, many parents did not realize that anything was different about their child, but using hindsight, began to notice these and other characteristics that made their child stand out (Portway & Johnson, 2003). Multiple studies found that young children with AS had unusual play habits that usually were repetitive and lacked in creativity (Carrrington & Graham, 2001; Attwood, 1997; Szatmari, 1991). Simpson and Myles (1998) pointed out that individuals

with AS may present entirely normal to an external observer, which causes parents to not seek intervention until the children are older.

Physical Fitness and Physical Activitiy

Children with AS are at similar risk of health problems associated with inactivity, but they show a significant difference in amount of activity compared to their peers (Pan & Frey, 2006). In Connor's (2000) study, many children with AS reported that Physical Education classes were of interest for them. This contradicts the statements made earlier by the children that classes without an intellectual purpose are pointless and demanding. Furthermore, PE was the number one most common 'difficult' subject for all of the children. However, this data was hard to analyze because of the wide range of varying answers. Borremans, Rintala and McCubbin (2010) found that children with AS were less physically active than the 'normal' children in the control group. Furthermore, children with AS scored lower on measures of balance, coordination, flexibility, muscular strength, and running speed.

Comorbid Disorders

Recent studies have shown that pervasive developmental disorders, like AS, do not have precise boundaries and there are also a number of overlapping disorders and behavioral symptoms that are not covered by a PDD diagnosis (Gadow et al. 2004; Ghaziuddin et al. 1998). Gillott, Furniss, and Walter (2001) found that children with high functioning pervasive

developmental disorder (AS) are at a high risk for suffering from a comorbid anxiety disorder. Furthermore, Tourette's Syndrome, motor and vocal tics are also considered to be overlapping diagnoses with AS (Ringman & Jankovic, 2000). In a study by Mattila and colleagues (2010) the comorbid disorders were forty-four percent behavioral disorders and forty-two percent anxiety disorders.

Problems in School

Introduction

Research on the troubles of children with AS in school has resulted in three major areas of impairment. First, social impairments in making friends and socializing during lunch and other breaks; Second, troubles with the English and Language curriculums; Third, stress related issues from peers, not having anyone to talk too, and a low teacher involvement and awareness. Social problems are characteristic of AS and it manifests itself as a major problem in school environments. These problems that children face in school can have many different outcomes, including expulsion from the school, home-schooling, or children refusing to attend school. Barnard, Harvey, Potter and Prior (2001) reported that children with AS are twenty times more likely to be excluded from school compared to their peers.

Social Impairments

The social impairments in school can be found in the classroom, during recess, and during break times throughout the school day. The students with AS rated lunch time as the worst time during the day (Connors, 2000). They disliked the free time in which they had no ritual or duty to complete. They were quoted as saying that kids would pick on them for being different at this time and they would try to busy themselves with homework. Furthermore, in the classrooms, the children reported that they preferred to work by themselves or in groups of 2 people maximum. The children also reported having problems making friends, and the one or two friends they had were either teachers, or someone they knew from a very early age until

present day (Connors, 2000). All sixteen of the children in Connors study mentioned the fact that they are picked on for being different, and even a few of the children stated that they did not understand why they were different. The concept of Theory of Mind has been proposed to explain the problems with social situations that the children face. A study found that children with AS could only see their point of view and were not able to understand that people can have differing perspectives (Sally, 2004).

Trouble with Academia

As stated earlier, a majority of the children with AS have average or above average intelligence giving them the label of high-functioning autism with many doctors. The problems with academia in school curriculums are usually caused by the children's non-academic disabilities. These issues are not usually addressed by college level special student services, and therefore the majority of children in college fail out (Dillon, 2007). In a qualitative study by Connor (2000), when asked the questions on what subjects do they like the best, and which subjects do they like the least, children with AS tended to dislike any subject that included class discussions, lots of reading, or excessive writing. Therefore, subjects that included English, Reading, or Writing were the least favored. Subjects like Math, Art and Sciences were favored because the children favored practical and factual curriculums. The children were quoted as saying they disliked tasks in which they had to participate in groups. Furthermore, they preferred to work with computers because they lacked emotion and were very patient with their misunderstandings (Connor, 2000).

Harbinson and Alexander (2009) detailed the major problems with academia as caused by an impairment in the children's imagination. Children with AS usually have proficient verbal skills but they have difficulty responding to inferential questions (Falk-Ross et al., 2004). In any type of literature or writing class, when a child with AS has to write a fiction story, they will tend to become factual with their experiences and the writing will be simplistic. People with AS usually have a different learning style and they use their intellect rather than emotional ability to guide their coursework (Jordan & Powell, 1995).

Problems in School: Stress & Educator Involvement

A major stressor that Cohen (1998) found for children with AS whom are attending school is the anxiety about an unpredictable world and environment. Children with AS need to have a very structured routine and daily schedule (Connor, 2000). When teachers, who are unaware of this need, change their daily activities, or move around scheduled assignments, the child with AS may become very frustrated. These children that become frustrated may show anger towards those who may seek to interrupt the established routine and rituals (Willey, 1999). Another major form of stress for children with AS was discovered to be the problems with bullying and the lack of involvement from the teachers and other school employees (Carrington and Graham, 2001). Children reported that when they were having difficulties, the best person for them to tell would be a teacher whom they are friends with. Special needs coordinators identified the difficulty of ensuring that all staff are aware of the varying aspects of AS and their willingness to modify their demands as a major problem in the school systems (Connor, 2000). LaMarine (2001) found that many children have very lengthy and unusual rituals that cause them to be late for class and other activities. Teachers who punish the

children for these problems only cause more stress for the child, which can lead to outbursts and other problems. If the teachers and other school staff are not aware of the special needs of a child with AS, this will cause a great amount of stress and frustration for the child in question.

Treatments

Without any interventions, especially in the social skills area, children with AS can develop despondence, negativism, and depression as they grow older and become more aware of their social impairments (Klin et al., 2000). Seventy-eight percent of parents with children who have AS rated social skills training as the most important intervention for their child's well-being (Little, 2003). Gresham (1988) wrote that there are four reasons for social skill impairments: skill deficits, performance deficits, self-control skill deficits and self-control performance deficits. Skill deficits are when the child does not know the appropriate skills, or they do not perform the skills with an appropriate frequency or intensity (performance deficit). Self-control deficits require the child to know the skills, but they do not perform these skills at acceptable levels because of problems before or after the skills (Gresham, 1988). Children with AS can have either deficits where they know the skill, but do not know how to use it or use it inappropriately, or they do not have the skills at all.

Marriage, Gordon, and Brand (1995) used a short-term social skills group that taught the children through role-playing, video-taping experiences, viewing movies and playing games. The participants showed a raise in self-confidence and social skill acquisition. Howlin and Yates (1999) also evaluated the effectiveness of a social skills group. The adults in this study also had an increase in skill acquisition. However, the researchers found that the adults then had a problem with contextual changes and generalization. Hwang and Hughes (2000) found that social skills training resulted in immediate gains in social and affective behaviors, verbal communication, and eye contact. Gustein and Whitney (2002) found that these behaviors were

not maintained, and they were also not generalizable to other situations. The following are two strategies that have been used to try to improve the social skills of children with AS.

Social Stories

Social stories are brief, individualized short stories that describe different social situations, and they provide specific behavioral responses that guide children with AS on how to behave in different social situations. The evidence for social story interventions for children with AS is very small. A study by Sansosti and Powell-Smith (2006) used social story interventions on an individual basis for three children with AS. The researchers found that for two children, there was an increase in social behavior during unstructured school times. However, the third child did not improve, and the two other children were not monitored to see if the behaviors maintained overtime. These results support the initial use of social stories to improve social skills.

Social stories have been found to improve positive social interactions during lunch time (Norris & Dattilo, 1999), decrease disruptive classroom behaviors (Scattone, Wilczyski, Edwards & Rabian, 2002), reducing tantrum behaviors (Kuttler, Myles, & Carlson, 1998) and properly teach children with AS how to greet people and share toys (Swaggart, et al., 1995). However, these studies had small samples and the results have not been replicated to date. The results are very limited, but are very promising, and future research will reveal the true efficacy of using social stories to help children with AS improve their social skills.

Social-Behavioral Learning Strategy

One social-behavioral learning strategy, referred to as SODA, teaches children with AS to stop, observe, deliberate, and act. This strategy was used in two different studies by Bock (2007(a); 2007(b)). The first study (2007(a)) focused on a single middle school student with AS. Bock found that the child increased time playing cooperatively with other children, time spent playing board games, and amount of visitors during lunch periods. Furthermore, the child was also checked on two months later and found that the effects had lasted, and the child could remember the SODA rules. These results were replicated with the second study (2007(b)) which followed four elementary age children before and after the SODA intervention.

Conclusion

Asperger Syndrome is a form of high-functioning autism that is going to be included as an autism spectrum disorder in the newest DSM. Autism diagnoses have been on the rise for the past few years, prompting many different causal explanations. As the research goes, there is a genetic aspect to autism, but there is no biological test to give a clear diagnosis. Children with AS share many characteristics with the diagnosis of autism with one major difference being no intellectual impairment. Children with AS tend to have an average or greater IQ.

AS is a neurological disorder that causes an impairment in social skills, communication, and a restricted and repetitive range of behaviors. The social skill deficits cause many problems for the children with AS. They seem to be slightly off to the unknowing onlooker, and they are often bullied in school for being different. The characteristic of each child's diagnosis is varied. Many children have an obsession with a certain topic and will talk about the topic in a factual monologue, without knowing if their listener is interested. Children with AS also have a higher risk of inactivity, suicide ideation and anxiety than their peers. These cause problems with making, and maintaining friends. Furthermore, children with AS have trouble with language and reading classes in school because they lack imagination. Classes that require making inferences, group projects, or imaginative thinking are more difficult for children with AS.

Interventions for AS have only recently been investigated, with social skill treatments being among the most investigated. While the amount of research into these treatments are small, the outlook is promising. Many social skill treatments do have short-term results with a few that do have results that maintain past the end of the treatment. Improving the social skills

of children with AS also improves the confidence the children have in themselves. While AS is a life-long neurological disorder, effective early intervention can lead to independence and a sense of normalcy for any adult.

References

Atwood, T. (1997). *Asperger's Syndrome: A Guide for Parents and Professionals*. London, England: Jessica Kingsley.

Baird, G., Cass, H., & Slonims, V. (2003, August 30). Diagnosis of autism. *British Medical Journal*, *327*(7413), 488-493.

Barnard, J., Harvey, V., Potter, D., & Prior, A. (2001). *Ignored of ineligible? The reality for adults with autistic spectrum disorders* (pp. 1-8). London, England: The National Autistic Society. Retrieved March 11, 2011

Bock, M. A. (2007a) A social-behavioral learning strategy intervention for a child with Asperger Syndrome. *Remedial and Special Education, 28*(5), 258-265.

Bock, M. A. (2007b) The impact of social-behavioral learning strategy training on the social interaction skills of four students with Asperger Syndrome. *Focus on Autism and Other Developmental Disabilites, 22*, 88-95.

Bowler, D. M. (1992). Theory of mind in Asperger's syndrome. *Journal of Child Psychology and Psychiatry*, *33*(5), 877-893.

Buettel, M. P. (2006). Exploring current knowledge on Asperger syndrome and best practices for school-based intervention. *School Psychology Quarterly, 21*(3), 349-357.

Carrington, S., & Graham, L. (2001). Perceptions of School by Two Teenage Boys with Asperger Syndrome and their Mothers: A Qualitative Study. *Autism*, *5*(37), 37-48.

Choi, S. H., & Nieminen, T. A. (2008). Naturalistic intervention for Asperger syndrome - a case study. *British Journal of Special Education*, *35*(2), 85-91.

Cohen, S. (1998). *Targeting Autism*. Los Angeles, CA: University of California Press. Retrieved February 17, 2011

Connor, M. (2000). Asperger syndrome (autistic spectrum disorder) and the self-reports of comprehensive school students. *Educational Psychology in Practive*, *16*(3), 285-296.

Dillon, M. R. (2007). Creating supports for college students with Aspeger Syndrome through collaboration. *College Student Journal*, *41*(2), 499-504.

Fitzgerald, M. (2007). Suicide and Asperger's Syndrome [Editorial]. *Crisis*, *28*(1), 1-3.

Fombonne, E. (2003). The prevelance of autism. *Journal of the American Medical Association*, *289*, 87-89.

Gadow, K. D., DeVincent, C. J., Pomeroy, J., & Azizian, A. (2004). Psychiatric symptoms in preschool children with PDD and clinic and comparison samples. *Journal of Autism and Developmental Disorders, 34*(4), 379-393.

Ghaziuddin, M. (2005). *Mental health aspects of Autism and Asperger's Syndrome*. London, England: Jessica Kingsley.

Ghaziuddin, M. (2008). Defining the behavioral phenotype of Asperger Syndrome. *Journal of Autism and Other Developmental Disorders. 38*, 138-142.

Ghaziuddin, M., Weidmer-Mikhail, E., & Ghaziuddin, N. (1998). Comorbidity of Asperger syndrome: a preliminary report. *Journal of Intellectual Disabilities, 42*(4), 279-283.

Gibbons, M. M., & Goins, S. (2008). Getting to know the child with Asperger Syndrome. *Professional School Counseling, 11*(5), 347-352.

Gillberg, C. (2002). *A guide to Asperger's syndrome.* Cambridge: Cambridge University Press.

Gillott, A., Furniss, F., & Walter, A. (2001). Anxiety in high functioning children with autism. *Autism, 5*(3), 277-286.

Gross, J. (1994). Asperger's Syndrome: A label worth having? *Educational Psychology*, *10*(2), 104-110.

Gustein, S. E., & Whitney, T. (2002). Asperger Syndrome and the development of social competence. *Focus on Autism and Other Developmental Disorders*, *17*(3), 167-171.

Hwang, B., & Hughes, C. (2000). The effects of social interactive training on early social communicative skills of children with Autism. *Journal of Autism and Developmental Disorders*, *30*(4), 331-343.

Howlin, P. (2000). Outcome in adult life for more able individuals with autism or Asperger syndrome. *Autism: International Journal of Research and Practice*, *4*, 63-83.

Howlin, P., & Moore, A. (1997). Diagnosis in autism: a survey of over 1200 patients in the UK. *International Journal of Research and Practice*, *1*, 135-162.

Howlin, P., & Yates, P. (1999). The potential effectiveness of social skills groups for adults with Autism. *Autism*, *3*(3), 299-307.

Klin, A., Volkmar, F., & Sparrow, S. (2000). *Asperger Syndrome.* New York, New York: The Guilford Press. Retrieved February 19, 2011

Kuttler, S., Myles, B. S., & Carlson, J. K. (1998). The use of social stories to reduce precursors to tantrum behavior in a student with autism. *Focus on Autism and Other Developmental Disorders, 13*(4), 176-182.

LaMarine, R. J. (2001). Asperger Syndrome: Advice for school personnel. *Preventing School Failure*, *45*(4), 148-152.

LeCouteur, A., & Baird, G. (2003). National Initiative for Autism: Screening and Assessment. In *National autism plan for children*. Retrieved March 4, 2011

Little, L. (2003). Maternal perceptions of the importance of needs and resources for children with Asperger Syndrome and nonverbal learning disorders. *Focus on Autism and Other Developmental Disorders*, *18*(4), 257-266.

Marriage, K. J., Gordon, V., & Brand, L. (1995). A social skills group for boys with Asperger's syndrome. *Austrailian and New Zealand Journal of Psychiatry*, *29*(1), 58-62.

Mayes, S. D., Calhoun, S. L., & Crites, D. L. (2001). Does DSM-IV Asperger's disorder exist? *Journal of Abnormal Child Psychology. 29,* 163-271.

McCubbin, J. A., Rintala, P., & Borremans, E. (2010). Physical fitness and physical activity in adolescents with Asperger Syndrome: A comparative study. *Adapted Physical Activity Quarterly*, *27*, 230-308.

Molloy, H., & Vasil, L. (2002). The social construction of Asperger Syndrome: the pathologising of difference? *Disability and Society, 17*(6), 659-669.

Myles, B. S., & Simpson, R. L. (1998). *Asperger syndrome: A guide for educators and parents.* Austin, Texas: PRO-ED.

Norris, C., & Dattilo, J. (1999). Evaluating effects of a social story intervention on a young girl with autism. *Focus on Autism and Other Developmental Disabilities, 14*(2), 180-186.

Osterling, J., & Dawson, G. (1994). Early recognition of children with autism: a study of first birthday home video tapes. *Journal of Autism and Other Developmental Disorders*, *24*(2), 247-259.

Ozonoff, S., & Miller, J. N. (2000). The external validity of Asperger disorder: lack of evidence from the domain of neuropsychology. *Journal of Abnormal Psychology, 109*(2), 227-238.

Pan, C. Y., & Frey, G. C. (2006). Physical activity patterns in youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *36*, 597-606.

Portway, S., & Johnson, B. (2003). Asperger Syndrome and the children who don't quite fit in. *Early Child Development and Care*, *173*(4), 435-443.

Ring, H., Woodbury-Smith, M., Watson, P., Wheelwright, S., & Baron-Cohen, S. (2008). Clinical heterogeneity among people with high functioning autism spectrum conditions evidence favouring a continuous severity gradient. *Behavioral and Brain Funtions, 4*(11), 18-26

Ringman, J. M., & Jankovic, J. (2000). Occurrence of tics in Asperger's syndrome and autistic disorder. *Journal of Child Neurology, 15*(6), 394-400.

Rutter, M., Sillberg, J., O'Connor, T., & Simonoff, E. (1999). Genetics and child psychiatry: II empirical research findings. *Journal of Child Psychology and Psychiatry*, *40*, 19-55.

Sally, D. (2004). Social maneuvers and theory of mind. *Marquette Law Review*, *87*(4), 893-902.

Sansosti, F. J., & Powell-Smith, K. A. (2006). Using social stories to improve the social behavior of children with Asperger syndrome. *Journal of Positive Behavior Interventions,* 8(1), 43-57.

Scattone, D. Wilcyzynski, S. M., Edwards, R. P., & Rabian, B. (2002). Decreasing disruptive behaviors of children with autism using social stories. *Journal of Autism and Developmental Disorders, 32,* 535-543.

Swaggart, B. L., Gagnon, E., Bock, S. J., Earles, T. L., Quinn, C., & Myles, B.S. (1995). Using social stories to teach social and behavioral skills to children with autism. *Focus on Autistic Behavior 10*(1), 1-16.

Szatmari, P. (1991). Asperger's Syndrome: Diagnosis, Treatment, and Outcome. *Pervasive Developmental Disorders*, *14*(1), 81-93.

Volkmar, F. R., Klin, A., Siegel, B., Szatmari, P., Lord, C., Campbel, M., Freeman, B.J., Cicchetti, D. V., Rutter, M., & Kline, W. (1994). Field trial for autistic disorder in DSM-IV. *American Journal of Psychiatry, 151,* 115-129.

Willey, L. (1999). *Pretending to be Normal*. London, England: Jessica Kingsley Publishers.

Wing, L. (1981). Asperger's syndrome: a clinical account. *Psychological Medicine, 11,* 115-129.

Wing, L. (1988). The diagnostic interview for social and communication disorders: background inter-rater reliability and clinical use. *Journal of Child Psychology and Psychiatry*, *43*, 307-325.

Woodbury-Smith, M. R., & Volkmar, F. R. (2009). *European Journal of Child and Adolescent Psychiatry*, *18*, 2-11.