ENCYCLOPEDIA
on Early Childhood
Development

[Archived] Autism and Its Impact on Child Development: Comments on Charman , Stone and Turner, and Sigman and Spence

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September 2005

Introduction

Autism first emerges in infancy and is characterized by chronic impairments in social development, along with disturbances in communication and restricted or repetitive patterns of behaviour.[1] Genetic and neurodevelopmental processes are evident in its etiology; it occurs four times more frequently in boys and may be associated with mental retardation.[2,3] An improved understanding of some of the social features of autism and related disorders has led to advances in diagnosis and early identification over the past 20 years.[4] These advances may have contributed to the increased ascertainment and prevalence of autism that has been noted worldwide.[5] Behavioural, psycho-educational treatments are most often recommended for autism; however, research suggests the effectiveness of these treatments is currently limited.[6]

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Individual differences in the presentation of autism are clear and constitute one element of complexity that complicates efforts to understand and treat this disorder.[7] The prototype of the child with autism as "unresponsive and aloof" describes only one subgroup.[8] Some children and adolescents with autism may be quite interactive, have well developed language skills, and be accomplished in the classroom, but still suffer from significant and debilitating social impairments.[9]

Research and Conclusions

Charman, Stone and Turner, and Sigman and Spence have provided cogent summaries that highlight many of the essential elements of current research and theory on this syndrome. Each of these eminent scientists notes the importance of research in improving methods for identifying children with autism at the earliest possible age. Progress in understanding the early non-verbal social-communication deficits of autism has facilitated the development of assessments for autism in children as young as 18 to 36 months of age (see Stone and Turner). However, these methods remain imprecise. In addition to the identification of deficits (negative symptoms), the identification of positive symptoms of autism in young children, such as atypical vocalizations, may help to improve these methods.[4,10] The discovery of biological or genetic markers of autism may also be critical to future improvements in early identification.[3]

Early identification enables early intervention, which may be most effective in treating the developmental nature of autism. A "constructivist" theory of autism suggests that:

a) the active participation of infants in social interactions with other people is necessary for typical social-communication and neurobehavioural development in early childhood; and b) social-communication impairments prevent children with autism from being active participants in social interactions from early in infancy. Therefore, social communication disturbance may be both an early *symptom of autism* and also a contributing factor in an atypical developmental process that leads to symptoms, such as social cognitive deficits that develop later in the lives of children with autism.[11,12] The early treatment of social communication disturbance[13] may be one of the more effective means of reducing the pernicious development component of pathology in autism.

As noted in the previous summaries, hope for the development of effective treatments for autism has been hampered by too few randomized control trial studies of treatments.[14] These types of

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studies are needed to ensure that experimental bias, such as critical group differences among children presented with comparison treatments, does not compromise conclusions that may be drawn regarding the effectiveness of treatments. This is important because even treatments that have the best-documented evidence of efficacy appear to be less effective with children with more intense symptom presentation and more effective with those with less intense symptom profiles.[6] Understanding how to intervene effectively with all children with autism remains a fundamental challenge. One approach is to identify and understand the individual differences that are related to treatment responsiveness. For example, Bono, Daily and Sigman[15] reported that children with autism who have better developed joint attention, and are more active in paying attention to what others look at, may be more responsive to early intervention.

Another approach may be to combine behavioural, psycho-educational therapy with pharmacotherapy, or the use of medicine to target the symptoms of autism.[16] However, after children have experienced many months, or years of atypical interactions and development, it could be difficult for medication, by itself, to lead directly to the acquisition of critical developmental milestones such as language or social cognition. Medication may boost the ability of children with autism to participate in social learning by addressing some of the symptoms of autism, or by reducing secondary complications that may impede learning (e.g. gastroenterological disturbance). However, for longer-term effects a period of psycho-educational developmental remediation may be needed in conjunction with pharmacotherapy. Understanding the synergism of behavioural and medical treatments for autism, while very carefully considering the risks of pharmacotherapy in young children, is an important goal for future research.

The previous summaries also did an excellent job of describing the outstanding contemporary work on identifying the core psychological and neurodevelopmental processes involved in autism. In conjunction with these summaries, it may be useful to distinguish several additional issues. First, since autism is often associated with mental retardation and social learning processes, there remains a considerable need to understand the associations among autism, IQ and learning. Second, because autism occurs much more frequently among boys than girls, it is important to pursue theory and research linking autism to gender-related neuro-hormonal and neurodevelopmental processes[17] while recognizing that similar gender-related processes may also contribute to other forms of developmental pathology.[18] Finally, understanding individual differences in autism may lead to greater clarity in genetic, neuro-anatomical, early

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identification, and intervention research. Here, it may be important to consider not only the possibility that autism may have varied etiological paths, but also that moderating factors may refract autism into important bio-behavioural variations.[19]

Implications for Policy and Services

Given the number and talent of the research teams now working on autism worldwide, it is likely that advances will continue in understanding, identifying and treating this disorder. These advances will have social-policy and related service provision implications. For example, it makes little sense to improve early identification methods without also systematically improving access to appropriate early intervention programs. The numbers of children referred to such programs may well exceed the current highest prevalence estimate for autism (1:200) because optimal early identification systems tend to over-identify (accept errors of commission) rather than use too narrow a definition and miss children in need (accept errors of omission). Providing the supports for such services will require considerable political will and resources within all nations. Early service provision may be cost-effective, though, relative to the tremendous expenditures associated with the long-term care of children and families affected by autism who do not receive early treatment. For example, the lifetime costs of medical, behavioural and education treatment for children with autism in the United Kingdom have been estimated at up to 2.4 million Pounds Sterling for many children or more than $4 million U.S.[20] However, the cost savings of early intervention have been estimated at between $656,000 and $1,082,00 per individual with autism between the ages of three and 55 years.[21]

Rather than a cure, it is likely that a significant shift toward higher IQs and verbal abilities may be among the best outcomes of early identification and intervention for autism.[22] Although we do not yet know enough about these higher-functioning children with autism (HFA), many will likely continue to require services in the elementary and secondary school years to maintain progress in social development and avoid maladaptive social emotional outcomes.[23] Research leading to the development of services for these children may become an important new focus for the field. Finally, the need to develop the types of training that allow more impaired children with autism to make the transition to adaptive adult roles in society remains unmet and constitutes a vital social policy issue.[24]

References

1. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders (DSM-IV)*. 4th ed. Text revision. Washington, DC: American Psychiatric Association; 2000.

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2. Fombonne E. The prevalence of autism. *JAMA -Journal of the American Medical Association* 2003;289(1):87-89.

3. Volkmar FR, Lord C, Bailey A, Schultz RT, Klin A. Autism and pervasive developmental disorders. *Journal of Child Psychology and Psychiatry* 2004;45(1):135-170.

4. Wetherby AM, Woods J, Allen L, Cleary J, Dickinson H, Lord C. Early indicators of autism spectrum disorders in the second year of life. *Journal of Autism and Developmental Disorders* 2004;34(5):473-493.

5. Wing L, Potter D. The epidemiology of autistic spectrum disorders: Is the prevalence rising? *Mental Retardation and Developmental Disabilities Research Reviews* 2002;8(3):151-161.

6. Smith T, Groen AD, Wynn JW. Randomized trial of intensive early intervention for children with pervasive developmental disorder. *American Journal of Mental Retardation* 2000;105(4):269-285.

7. Beauchaine TP. Taxometrics and developmental psychopathology. *Development and Psychopathology* 2003;15(3):501-527.

8. Wing L, Gould J. Severe impairments of social interaction and associated abnormalities in children: epidemiology and classification. *Journal of Autism and Developmental Disorders* 1979;9(1):11-29.

9. Piven J, Harper J, Palmer P, Arndt S. Course of behavioral change in autism: A retrospective study of high-IQ adolescents and adults. *Journal of the American Academy of Child and Adolescent Psychiatry* 1996;35(4):523-529.

10. Sheinkopf SJ, Mundy P, Oller DK, Steffens M. Vocal atypicalities of preverbal autistic children. *Journal of Autism and Developmental Disorders 2*000;30(4):345-354.

11. Mundy P, Neal AR. Neural plasticity, joint attention and a transactional social-orienting model of autism. *International Review of Research in Mental Retardation* 2001;23:139-168.

12. Mundy P, Burnette C. Joint attention and neurodevelopmental models of autism. In: Volkmar F, Klin A, Paul R, eds. *Handbook of autism and pervasive developmental disorders*. 3rd ed. Hoboken, NJ: John Wiley & Sons, Inc; 2005;650-681.

13. Schertz HH, Odom SL. Joint attention and early intervention with autism: A conceptual framework and promising approaches. *Journal of Early Intervention* 2004;27(1):42-54.

14. Aldred C, Green J, Adams C. A new social communication intervention for children with autism: Pilot randomized control treatment study suggesting effectiveness. *Journal of Child Psychology and Psychiatry* 2004;45(8):1420-1430.

15. Bono MA, Daily T, Sigman M. Relations among joint attention, amount of intervention and language gain in autism. *Journal of Autism and Developmental Disorders* 2004;34(5):495-505.

16. Hollander E, Phillips AT, Yeh CC. Targeted treatments for symptom domains in child and adolescent autism. *Lancet* 2003;362(9385):732-734.

17. Baron-Cohen S, Hammer J. Is autism an extreme form of the “male brain”? *Advances in Infancy Research* 1997;11:193-217.

18. Alexander GM, Peterson BS. Testing the prenatal hormone hypothesis of tic-related disorders: Gender identity and gender role behavior. *Development and Psychopathology* 2004;16(2):407-420.

19. Sutton SK, Burnette CP, Mundy PC, Meyer J, Vaughan A, Sanders C, Yale M. Resting cortical brain activity and social behavior in higher functioning children with autism. *Journal of Child Psychology and Psychiatry* 2005;46(2):211-222.

20. Jarbrink K, Knapp M. The economic impact of autism in Britain. *Autism* 2001;5(1):7-22.

21. Jacobson JW, Mulick JA, Green G. Cost-benefit estimates of early intensive behavioral intervention for young children with autism-general model and single state case. *Behavioral Interventions* 1998;13(4):201-226.

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22. Smith T. Outcome of early intervention for children with autism. *Clinical Psychology: Science and Practice* 1999;6(1):33-49.

23. Bauminger N. The facilitation of social-emotional understanding and social interaction in high-functioning children with autism: Intervention outcomes. *Journal of Autism and Developmental Disorders* 2002;32(4):283-298.

24. Keel JH, Mesibov GB, Woods AV. TEACCH supported employment program. *Journal of Autism and Developmental Disorders* 1997;27(1):3-9.

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