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Original Article

Rates of Autism Spectrum Disorder Diagnosis Under the DSM-5 Criteria Compared to DSM-IV-TR Criteria in a Hospital-Based Clinic



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ABSTRACT

BACKGROUND: We aimed to determine whether there was a decrease in the number of children diagnosed on the autism spectrum after the implementation of the new diagnostic criteria as outlined in the Diagnostic and Statistical Manual of Mental Health Disorders Fifth Edition published in May 2013. **METHOD:** We reviewed 1552 charts of children evaluated at the Women and Children's Hospital of Buffalo, Autism Spectrum Disorders Clinic. A comparison was made of children diagnosed with autism spectrum disorder (autism, Asperger disorder, pervasive developmental disorder—not otherwise specified) from 2010 to May 2013 using the Diagnostic and Statistical Manual of Mental Health Disorders Fourth Edition, Text Revision criteria with children diagnosed from June 2013 through June 2015 under the Diagnostic and Statistical Manual of Mental Health Disorders Fifth Edition. **RESULTS:** Using χ^2 analysis, the 2013–2015 rate of autism spectrum disorder diagnosis (39%) was significantly lower ($P < 0.01$) than the 2010 to May 2013 sample years rate (50%). **CONCLUSION:** The rate of autism spectrum disorder diagnosis was significantly lower under the recently implemented Diagnostic and Statistical Manual of Mental Health Disorders Fifth Edition criteria.

Keywords: early diagnosis, DSM-5, autism, DSM-IV-TR

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Introduction

Autism spectrum disorder is a clinical diagnosis entailing varying degrees of subjective interpretation and utilizing best available methods such as an accepted standard questionnaire (Autism Diagnostic Interview-Revised) and standardized test (Autism Diagnostic Observation Schedule [ADOS]). The recent change in diagnostic criteria in the

Diagnostic and Statistical Manual of Mental Health Disorders Fifth Edition¹ (DSM-5) was cautiously received because of concern that more stringent criteria would leave more children without services or supports.

Autism spectrum disorder is a neurodevelopmental disorder that affects a child's social development, language function, and behavior. In the Diagnostic and Statistical Manual of Mental Health Disorders Fourth Edition, Text Revision² (DSM-IV-TR), autism spectrum disorders were a group of pervasive developmental disorders with variable degrees of abnormal social reciprocity and interaction, communicative intent, and repetitive, stereotyped patterns of behavior, interests, and activities with onset before age three years. The use of the term “autism” has evolved since its early description of a withdrawn and self-absorbed subset of schizophrenic patients in

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the early 1900s. As we learn more about this disorder, it is determined that it is a biologically and molecularly based disorder appearing to involve multiple genes with extremely varied phenotypes of heterogeneous etiology.³ Increasingly researchers agree that there is a large range of causes, courses, symptom severity, and comorbidities rather than a single phenotype for this disorder.⁴ The fact that the diagnostic phenotype is so variable makes perceiving and attributing behavioral features to the autism spectrum a rather daunting task, often causing a delay in diagnosis and implementation of much needed therapeutic early intervention.

The increase of autism spectrum diagnoses over the last 20 years has raised public concern and increased awareness. According to the most recent publication of the Centers for Disease Control and Prevention, the Autism and Developmental Disabilities Monitoring Network, the prevalence of autism spectrum disorder in the United States is estimated at one in every 68 children. The male to female ratio is 5:1, which translates to an incidence of one in 42 boys and one in 189 girls. The reasons for the increase in the number of diagnoses may be due to an increase in awareness, changes in diagnostic criteria, or other unknown factors.

The most recent change to the DSM-5 diagnostic criteria highlights two of the most problematic issues in the diagnosis of autism spectrum disorders. The first issue is that there is no clear objective diagnostic measure to assist in the diagnosis of this disorder. Diagnosis is a clinical one, and even the more objective tests still are somewhat subjective in interpretation. There is no single gene, toxic exposure, or neurological insult that lends itself to a certain autism diagnosis. The second is the varying presentation of this disorder. That there is no single phenotype intensifies the diagnostic and etiologic challenges. Are the new diagnostic criteria helpful in clarifying these two issues? Are the new criteria more stringent, and if so, will we see the first decrease in autism prevalence in recent decades?

Specifically, changes implemented by the DSM-5 include the elimination of Asperger disorder as well as pervasive developmental disorder—not otherwise specified (PDD-NOS) as subtypes of the pervasive developmental disorders. In addition, Rett syndrome is now a distinctive diagnosis, no longer subsumed under autism spectrum disorder. Originally the three domains of deficits in social reciprocity, communication, and repetitive and restricted behaviors that defined pervasive developmental disorder criteria are now collapsed into two domains with social interaction and communication merged into one domain, with repetitive and restrictive behaviors as the second domain. To meet criteria, the individual must have all three of the features of the social and communication domain, whereas before, one needed two from the social category and at least one from the communication category. The individual must meet at least two of the four behavioral criteria and deficits must occur across multiple contexts. The addition of sensory sensitivities to the restricted and repetitive behaviors domain was made and it is also stated that behavioral and social and communication criteria can be met on the basis of historical report. The onset by age three years was changed to “sometime in

early childhood.” The DSM-5 includes a new diagnostic category, social communication disorder, meant for those individuals who may meet criteria for social and communicative deficits, but without the restricted and repetitive behaviors. The diagnostic criteria for this diagnosis are not exactly the same as the social and communication criteria for autism spectrum disorder.

At the Autism Spectrum Disorders Clinic of Women and Children’s Hospital of Buffalo, we studied whether there was indeed a decrease in the number of children diagnosed on the autism spectrum after the implementation of the new diagnostic criteria as outlined in the DSM-5 published in May 2013.

Methods

We reviewed the records of 1552 children who were evaluated at the Women and Children’s Hospital of Buffalo, Autism Spectrum Disorders Clinic. We compared children diagnosed with autism spectrum disorder (autism, Asperger disorder, PDD-NOS) from 2010 to May 2013 using the DSM-IV-TR criteria with children diagnosed from June 2013 through June 2015 under the DSM-5. For diagnosis in the Autism Clinic, we gathered data from the Teacher Report Form, the school Individualized Education Plan, the teacher Social Responsiveness Scale (SRS), parent SRS, parent Social Communication Questionnaire, Gilliam Autism Rating Scale second edition, and clinical impression, all assimilated by a multidisciplinary team of a child neurologist, psychologist, and developmental pediatrician, each of whom has significant experience in the assessment of early childhood development. In borderline cases, the ADOS was utilized as a semi-structured, standardized measure. In individuals whose diagnoses were not clear based on observation in clinic, parent and teacher report, or ADOS, a school observation was additionally conducted. All Teacher Report Forms, SRS, Social Communication Questionnaires, and Gilliam Autism Rating Scale second edition questionnaires were provided by the clinic for the parent and/or teacher to complete prior to arrival. These questionnaires were returned, scored, and reviewed in the clinic setting. In addition, any ADOS testing performed by the trained clinical social worker was completed within the context of the autism clinic. There were no such tests administered in the school setting. However, the results of previous intelligence testing and related tests done by the school district through the Committee for Preschool Special Education or the Committee for Special Education and supplied by the parent or caregiver were reviewed by the clinical team. In order for a patient to receive a diagnosis, the three clinicians must agree that sufficient criteria were met.

The participant pool included children ages 18 months to 17 years who had been referred to the Autism Spectrum Disorders Clinic either by a parent, teacher, primary care physician, or other specialty physician.

In 2010, (Table 1) 211 patients were evaluated; 15% were female and 85% were male. The ADOS was utilized in 12% ($n = 25$) of cases. In 2011, 242 patients were evaluated; 17% were female and 83% were male. The total number of ADOS administrations that year was 14% ($n = 35$). There were 246 patients evaluated in 2012 in which 22% were female and 78% were male with 23% ($n = 56$) receiving an ADOS. The diagnostic criteria had changed in May of 2013. Before May 2013, 117 individuals were evaluated; 21% were female and 79% were male. ADOS was required in 29% ($n = 34$). After May 2013, a total of 205 individuals were evaluated; 17% were female and 83% were male. A total of 21% ($n = 43$) of patients required ADOS. In 2014, the first full year of the new diagnostic criteria, 359 patients were evaluated; 19% were female and 81% were male. There were 67 (19%) patients who had an ADOS evaluation. From January 2015 to June 2015, an additional 200 patients were evaluated. Of these patients, 25% were female and 76% were male. There were 26 (13%) patients who required additional testing with ADOS.

χ^2 analysis was used to determine the significance of any difference between rates of autism spectrum diagnosis between patients seen in January 2010 to May 2013 and June 2013 to June 2015.

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