AUTISM SPECTRUM DISORDER

Autism Spectrum Disorder is a neurodevelopmental disorder that affects a child’s social development, language function and behavior.

Under the DSM-IV-TR (Diagnostics and Statistics Manual of Mental Health Disorders 4th edition, Text Revision.) Autism Spectrum Disorders were a group of Pervasive Developmental disorders characterized by abnormal:

1) Social reciprocity and interaction,

2) Communicative intent, and

3) Repetitive, stereotyped patterns of behavior, interests and activities

with onset before three years of age.

AUTISM SPECTRUM DISORDER

The diagnosis of Autism Spectrum Disorder is a clinical diagnosis entailing varying degrees of subjective interpretation utilizing best methods available such as the gold standard questionnaire (ADI-R: Autism Diagnostic Interview-Revised) and standardized test (ADOS : Autism Diagnostic Observation Schedule).

The recent change in diagnostic criteria under the DSM-5 (Diagnostics and Statistics Manual of Mental Health Disorders 5th edition) was cautiously received due to concern that more stringent criteria would leave more children without services or supports.
AUTISM SPECTRUM DISORDER

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. Increasingly researchers refer to “the autisms” rather than a single autism phenotype. 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 subsequently the attainment 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 CDC’s most recent publication, the Autism and Developmental Disabilities Monitoring Network, the prevalence of autism spectrum disorder in the United States is estimated at 1 in every 68 children.

The male to female ratio is 3 to 1 which translates to an incidence of 1 in 42 boys and 1 in 189 girls.

Reasons for the increase in diagnosis may be due to an increase in awareness, but also due to changes in diagnostic criteria.
The most recent change in the DSM-5 diagnostic criteria highlights two of the most problematic issues in the diagnosis of autism spectrum disorders. First, 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.

Second, in the varying presentation of this disorder, there is no single phenotype intensifies the diagnostic and etiologic challenges. 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 PDD-NOS as subtypes of the Pervasive Developmental Disorders. In addition, childhood Disintegrative Disorder and Rett Syndrome are now distinctive diagnoses, 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 of the features of the social/communication domain, whereas before, one needed two from each social and communicative category.

The behavioral deficits must occur across multiple contexts and it is also stated that behavioral criteria can be met on the basis of historical report. The addition of sensory sensitivities in the restricted and repetitive behaviors domain was added.

**Autism Spectrum Disorder (ASD)**

A total of 6 (or more) items from (1), (2), and (3) with at least 2 from (1) and one each from (2) and (3).

**1. Qualitative impairment in social interaction as manifested by at least two of the following:**

- The use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction.
- Failure to develop peer relationships appropriate to developmental level.
- A lack of spontaneous seeking to share enjoyment, interests or achievements with other people (e.g. by a lack of showing, bringing or pointing out objects of interest).
- Lack of social or emotional reciprocity.

**2. Qualitative impairments in communication as manifested by at least one of the following:**

- Delay in, or total lack of, the development of spoken language (not accompanied and attempt to compensate through alternative modes of communication such as gesture or mime).
- In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others.
- Stereotyped and repetitive use of language or idiosyncratic language.
- Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level.

**A. Persistent deficits in social communication and social interaction across multiple contexts as manifested by the following, currently or by history (examples are illustrative, not exhaustive):**

- Deficits in social-emotional reciprocity ranging for example from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
- Deficits in nonverbal communicative behaviors used for social interaction, ranging for example from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
- Deficits in developing, maintaining and understanding relationships, ranging for example from difficulties in adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or making friends; to absence of interest in peers.

**3. Restricted repetitive and stereotyped patterns of behavior, interests and activities as manifested by at least one of the following:**

- Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus.
- Apparently inflexible adherence to specific, nonfunctional routines or rituals.
- Stereotyped and repetitive motor manners (e.g., hand or finger flapping or twisting, or complex whole-body movements).
- Persistent preoccupation with parts of objects.
PDD-NOS DSM-IV

This category should be used when there is a severe and pervasive impairment in the development of reciprocal social interaction or verbal and nonverbal communication skills, or when stereotyped behavior, interests and activities are present, but the criteria are not met for a specific pervasive developmental disorder, schizophrenia, schizotypal personality disorder, or avoidant personality disorder. For example, this category includes “atypical autism” – presentation that do not meet the criteria for autistic disorder because of late age of onset, atypical symptomatology, or subthreshold symptomatology, or all of these.

AUTISM SPECTRUM DISORDER DSM-5

The onset by age 3 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 socialcommunication criteria for Autism Spectrum Disorder.

INTRODUCTION

At the Autism Spectrum Disorders Clinic of Women and Children's Hospital of Buffalo, we aimed to determine 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

A total of 1552 charts were reviewed of children seen and 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, PDD-NOS) from 2010-May 2013 using the DSM-IV-TR criteria June 2013 through June 2015 under the DSM-5.

METHODS

For diagnosis in the Autism Clinic, we gathered data from Teacher Report Form (TRF), the school IEP (Individualized Education Plan), the teacher SRS (Social Responsiveness Scale), parent SRS, parent SCQ (Social Communication Questionnaire), GARS-2 (Gilliam Autism Rating Scale 2nd edition), and clinical impression, all assimilated by a multidisciplinary team of a Child Neurologist, Psychologist and Developmental Pediatrician, each of whom have significant experience in the assessment of early childhood development.

In borderline cases, the Autism Diagnostic Observation Schedule (ADOS) was utilized as a semi-structured, standardized measure. In some cases where diagnoses were not clear based on observation in clinic, parent and teacher report, or ADOS, a school observation was additionally conducted.

In order for a patient to receive a diagnosis, the three clinicians must agree that sufficient criteria were met.

RESULTS

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

Chi-square analysis was used to determine significance of any difference between rates of autism spectrum diagnosis between patients seen January 2010-May 2013 and June 2013-June 2015.

There was no significant difference between the DSM-IV-TR group and DSM-5 group with regards to gender and age.

### Table 1. Diagnosis of patients seen between January 2010 and June 2015.

|                | 2010 | 2011 | 2012 | Total | 2013 through May 31 | 2013 Starting June 1 | 2014 | 2015 through 6.30.15 | Total
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<tr>
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<td>50</td>
<td>48</td>
<td>123</td>
<td>25</td>
<td>25</td>
<td>25</td>
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<tr>
<td>Total DSM IV</td>
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<td>100%</td>
<td>745</td>
<td>100%</td>
<td>1552</td>
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<tr>
<td>Total DSM V</td>
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<td>12%</td>
<td>50</td>
<td>21%</td>
<td>25</td>
<td>10%</td>
<td>20</td>
<td>17%</td>
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<td>Combined Total</td>
<td>430</td>
<td>56%</td>
<td>36</td>
<td>59%</td>
<td>40</td>
<td>26%</td>
<td>30</td>
<td>26%</td>
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<tr>
<td>% of Total</td>
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*DSM diagnosis changed in May 2013 - release date was May 18, 2013*
RESULTS

During years prior to the change in diagnostic criteria from 2010 to May 2013, rates of autism spectrum disorder diagnosis in our autism clinic were 44%, 56%, 55% and 41%, respectively.

Under the new DSM-5 criteria, 44% after May 2013, 36% of patients in 2014 and 41% of patients in 2015 received an autism spectrum disorder diagnosis and 5% had a diagnosis of social communication disorder in 2014 and 3% through June 2015. A total of 1552 individuals were evaluated (Table 1).

Under DSM-IV-TR, 807 patients were seen compared to 745 under the DSM-5. (Table 2).

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Table 2. Total number of patients diagnosed under the DSM-IV-TR vs. DSM-5 criteria.

<table>
<thead>
<tr>
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<th>DSM-IV-TR</th>
<th>DSM-5</th>
<th>Combined Total</th>
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<td>Total Number</td>
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<tr>
<td>Number of Pts</td>
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<tr>
<td>Non Spectrum</td>
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<td>110</td>
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<tr>
<td>Social Communication Disorder</td>
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<tr>
<td>Total Diagnoses</td>
<td>807</td>
<td>745</td>
<td>1552</td>
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</tbody>
</table>

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RESULTS

Total number of DSM-IV-TR autism spectrum disorder diagnoses comprising Autism, Asperger Disorder and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) was 407. Non-spectrum diagnoses were 400 out of 807 patients evaluated in our clinic under the DSM-IV-TR criteria.

The total numbers of children diagnosed with autism spectrum disorder under DSM-5 after May 2013 was 293 and 430 patients were non-spectrum. Total children evaluated during that time period was 745.

Using chi-square analysis, the rate of autism spectrum disorder diagnosis was significantly lower under the DSM-5 criteria than the 2010- May 2013 years. The P value is significant at p<0.01 (p=0.000103).
RESULTS

The use of ADOS in our clinic was for borderline cases where diagnosis was not clear based upon clinical presentation plus the parent and teacher feedback. We looked at the frequency for which the ADOS had been used between 2010-May 2013 and compared it to June 2013-June 2015 and this number did not statistically change (p=0.87) indicating that implementing the DSM-5 criteria made the diagnosis no less challenging in the borderline cases.

DISCUSSION

Prior studies have demonstrated concern as to the high specificity but decreased sensitivity of the DSM-5 criteria. Additionally, it has been debated as to whether the DSM-5 is an improvement on the DSM-IV-TR criteria. The concern is augmented in the challenges practitioners face in recognizing or correctly diagnosing autism spectrum disorder. This has major implications in both clinical practice and further research.

DISCUSSION

There have been several studies that have attempted to compare the DSM-5 criteria to the DSM-IV-TR criteria in clinical samples. Some have used retrospective methods in their application of DSM-5 criteria to project the sensitivity of the criteria on presently diagnosed individuals. There were other studies that used the diagnostic criteria on the same contemporaneous sample (Young, Radt 2014) (Gibbs 2015) while another was a meta-analysis of both retrospective and contemporaneous studies (Kulage 2015). The majority of studies comparing the diagnosis using the DSM-5 vs. the DSM-IV-TR criteria showed a decrease in sensitivity and fewer individuals diagnosed with autism spectrum disorder.
DISCUSSION

Our study is consistent with prior studies that indicate a decreased rate of diagnosis of individuals on the autism spectrum disorder under the new DSM-5 criteria in real time. The analysis was done on the cases received and diagnosed after the implementation in May 2013, 2014 which was the first full year in which the new criteria were implemented as well as the first 6 months of 2015 for a more accurate size comparison.

DISCUSSION

Our study shows that the decrease in diagnosis was statistically significant. This implies that under the new criteria there are individuals who may display some symptoms but do not meet diagnostic criteria and so no longer have sufficient access to appropriate supports and resources. Adequate medical, therapeutic and educational accommodations for these individuals may no longer be available due to lack of diagnosis.

DISCUSSION

This increases burden on family and caregivers. In addition this change in diagnostic prevalence may have major impact on research in this population. Comparative groups may become less clear, especially when study groups comprised of individuals diagnosed prior to and after the implementation of the new criteria.
QUESTIONS

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REFERENCES


