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# DSM-IV Versus DSM-5 Autism Spectrum Disorder and Social Anxiety Disorder in Childhood: Similarities and Differences

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**Abstract** Within the light of the DSM-5, the current study examined (1) how many and which children with a DSM-IV classification of autism spectrum disorder (ASD) fulfill the DSM-5 symptom-criteria, and (2) whether children who did and did not meet DSM-5 symptom-criteria and children with social anxiety disorder (SAD) can be differentiated from each other based on ASD symptomatology. In total, 90 referred children with a DSM-IV classification of high-functioning ASD, and 21 referred children with SAD participated (age range 7–17 years). ASD-symptoms were examined with the Autism Diagnostic Interview-Revised and the Children’s Social Behavior Questionnaire. It was found that 30 % of the ASD sample did not meet DSM-5 symptom-criteria for ASD, mainly because they failed to meet the DSM-5 criteria of the repetitive domain. Children with ASD who did and did not meet DSM-5 symptom-criteria differed on the repetitive domain, while children with ASD (according to DSM-IV and DSM-5 symptom criteria) had higher scores on the social-communication domain than children with SAD. Findings suggest a continuum of ASD-symptoms in the DSM-5 for children with SAD, social communication disorder and ASD. More research is needed to examine how these three disorders differ with respect to their etiology, neuropsychological profiles and clinical characteristics.

**Keywords** DSM-5 · DSM-IV · Autism spectrum disorder · Social communication disorder · Social anxiety disorder

## Introduction

For the DSM-5 (Diagnostic Statistical Manual-5th Edition; American Psychiatric Association (APA) 2013) one category of autism spectrum disorders (ASD) is proposed, instead of the DSM-IV ASD-subtypes; autistic disorder, Asperger’s syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS). In short, the proposed DSM-5 ASD symptom-criteria deviate from DSM-IV in that (1) the symptoms of the social and communication domains are aggregated and (2) all children with a DSM-5 ASD classification have to meet criteria for the repetitive domain (APA 2013). Several studies suggest that a significant proportion of children with a current ASD classification do not meet DSM-5 criteria for ASD (e.g., Frazier et al. 2012; Gibbs et al. 2012). It is important to examine which and why children who meet DSM-IV criteria for ASD do not meet DSM-5 criteria, as well as how they differ from children who do meet DSM-5 criteria. In addition, it seems important to investigate whether children who do and do not meet DSM-5 ASD criteria differ from children with other disorders. One disorder for consideration is social anxiety disorder (SAD); ASD and (social) anxiety disorders share diagnostic overlap in symptoms (e.g., Hartley and Sikora 2009), Hrdlicka and Dudova (2013) suggested a broader model in which ASD and SAD fall under the umbrella of ‘social inhibition disorders’, and a specific link between social anxiety and ASD-symptoms is found (van Steensel et al. 2013).

This paper first examined, in a clinical context, who and which of the children with a current DSM-IV-TR ASD classification meet DSM-5 symptom-criteria for ASD. Second, a comparison is made between (1) children who meet DSM-5 symptom-criteria of ASD, (2) children who do not meet DSM-5 symptom-criteria but who did receive

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a clinical DSM-IV-TR ASD diagnosis, and (3) children with SAD.

## Method

### Participants

The ASD-sample consisted of 90 children (69 boys, 21 girls,  $M_{\text{age}} = 11.08$  years,  $SD = 2.55$ , range 7–17) of whom 14 were diagnosed with autistic disorder, 26 with Asperger's syndrome, and 50 with PDD-NOS. A group of 21 children diagnosed with SAD (8 boys, 13 girls,  $M_{\text{age}} = 13.29$ ;  $SD = 2.45$ , range 7–17) was added.

### Procedure

Children with ASD were referred to several outpatient mental health centers. All children had a DSM-IV-TR classification of ASD, at least one comorbid anxiety disorder, and cognitive functioning above 70. The children were part of a larger study examining anxiety in children with and without ASD (van Steensel et al. 2012). They were selected for the current study if an ADI-R (Autism Diagnostic Interview-Revised; Lord et al. 1994) was administered. ASD (subtype) diagnoses were based on a clinical consensus classification of a multi-disciplinary team. This team was kept blind for ADI-R results and therefore classifications according to DSM-IV-TR and ADI-R were independent. For more information about the procedure see van Steensel et al. (2012, 2013).

### Measures

#### ADI-R

The ADI-R (Lord et al. 1994) is a semi-structured diagnostic interview with good validity and reliability in which the caregiver(s) is asked about the child's behavior and development. A diagnostic algorithm is applied to establish an ASD-classification. For this study, and in accordance with the DSM-IV, children had to meet the cutoff for the social domain plus either the cutoff for the communication or the repetitive domain, to confirm a DSM-IV ASD classification (Risi et al. 2006). DSM-5 symptom criteria were checked by inspection of the answers to the rearranged ADI-R items following the method used by Huerta et al. (2012).

#### CSBQ

The CSBQ (Luteijn et al. 2002) is a 49-item questionnaire developed to assess a range of features that are typical for

(milder) ASD. The CSBQ consists of six subscales (see Table 1) which summed make up the total score. Good validity and reliability was demonstrated in a large Dutch sample study ( $n = 3,407$ ; Hartman et al. 2006). Father and mother reports were averaged (if father report was missing, mother report was used and vice versa). Five reports (5.6 %) were missing and were estimated with 2-way imputation (based on group mean and post-measurement report).

### Data Analyses

First, it was examined how many of the children with a DSM-IV-TR classification of ASD meet DSM-IV and DSM-5 symptom criteria for ASD according to the ADI-R. Secondly, children who meet DSM-5 symptom criteria were compared to children who did not meet DSM-5 symptom criteria with respect to gender and age, using a Chi square test and an ANOVA respectively. Third, a MANCOVA (controlling for age and gender) with post hoc analyses was carried out to examine group differences between (1) children with ASD who meet DSM-5 symptom criteria, (2) children with ASD who did not meet DSM-5 symptom criteria (but who did have a DSM-IV-TR diagnosis of ASD), and (3) children with social anxiety disorder.

## Results

Of the 90 children who were classified with a clinical DSM-IV-TR diagnosis of ASD, 88 children (97.8 %) fulfilled DSM-IV symptom-criteria for ASD based on the ADI-R. Of note, 50 children (55.6 %) were found to meet all three cutoffs of the ADI-R (which is in line with the DSM-IV symptom-criteria for autistic disorder). It was further found that 27 children (30.0 %) did not meet DSM-5 symptom-criteria; one child (1.1 %) failed to meet criteria for 'deficits in social-emotional reciprocity', one child (1.1 %) did not meet criteria for 'deficits in nonverbal communicative behaviors used for social interaction', and 25 children (27.8 %) did not fulfill the two-out-of-four repetitive criteria (of note, 20 of 25 children did meet a one-out-of-four repetitive criteria). Of those not meeting DSM-5 symptom-criteria, 18 (66.7 %) were diagnosed with PDD-NOS, eight (29.6 %) with Asperger's syndrome and one child (3.7 %) with autistic disorder. No differences were found for gender,  $\chi^2(1) = 2.16$ ,  $p = .142$ , however, children not meeting DSM-5 symptom-criteria were significantly older,  $F(1, 88) = 15.90$ ;  $p < .001$  ( $M = 12.59$  vs.  $M = 10.43$ ).

Children were divided into three groups: (1) children with ASD who did meet DSM-5 symptom-criteria (DSM-5 ASD group,  $n = 63$ ), (2) children with ASD who did not

**Table 1** Means, standard deviations, group comparisons and effect sizes (Cohens' d) between children with ASD meeting DSM-5 symptom-criteria (DSM-5), children with ASD not meeting DSM-5 symptom-criteria (DSM-IV), and children with social anxiety disorder (SAD)

	DSM-5		DSM-IV		SAD		Group comparisons	DSM-5 versus DSM-IV	DSM-5 versus SAD	DSM-IV versus SAD
	M	SD	M	SD	M	SD				
ADI-R total	31.97	7.31	23.67	8.40	9.62	9.58	DSM-5 > DSM-IV > SAD	1.08	2.82	1.57
1. Social communication	25.27	6.35	21.30	8.44	7.71	9.10	DSM-5/DSM-IV > SAD	0.56	2.46	1.56
a. Social-emotional reciprocity	7.90	2.93	7.04	3.47	2.67	4.02	DSM-5/DSM-IV > SAD	0.28	1.62	1.17
b. Non-verbal communication	6.92	2.80	5.85	3.44	2.05	2.89	DSM-5/DSM-IV > SAD	0.36	1.73	1.18
c. Relationships	10.44	3.19	8.41	3.87	3.00	2.97	DSM-5/DSM-IV > SAD	0.60	2.37	1.54
2. Restricted, repetitive behaviors	6.70	2.94	2.37	2.15	1.90	2.43	DSM-5 > DSM-IV/SAD	1.59	1.70	0.21
a. Stereotyped/repetitive	3.14	1.79	1.67	2.00	0.95	1.32	DSM-5 > DSM-IV/SAD	0.79	1.30	0.41
b. Routines/rituals	1.43	1.06	0.30	0.67	0.52	0.93	DSM-5 > DSM-IV/SAD	1.18	0.88	-0.28
c. Interests	1.71	0.92	0.37	0.79	0.29	0.46	DSM-5 > DSM-IV/SAD	1.52	1.71	0.12
d. Hypo/hyper reactivity	0.41	0.59	0.04	0.19	0.14	0.36	DSM-5 > DSM-IV	0.73	0.50	-0.36
CSBQ total	44.79	16.08	29.43	12.94	22.12	16.40	DSM-5 > DSM-IV/SAD	1.01	1.40	0.50
1. Behaviors not tuned to situation	11.85	4.89	7.59	4.67	6.02	5.44	DSM-5 > DSM-IV/SAD	0.88	1.16	0.31
2. Withdrawn	9.59	5.13	7.96	3.26	6.69	5.38	Not significant	0.35	0.56	0.29
3. Orientation problems	6.84	3.62	3.41	2.96	1.88	2.75	DSM-5 > DSM-IV/SAD	1.00	1.45	0.53
4. Problems social understanding	8.39	3.09	5.17	3.74	3.21	3.16	DSM-5 > DSM-IV > SAD	0.98	1.67	0.56
5. Stereotyped behaviors	4.86	2.96	2.22	2.00	1.60	2.78	DSM-5 > DSM-IV/SAD	0.97	1.12	0.26
6. Resistance to change	3.33	1.75	2.85	1.68	2.71	1.93	Not significant	0.28	0.35	0.08

meet DSM-5 symptom-criteria (DSM-IV ASD group,  $n = 27$ ), and (3) children with SAD who did not have a clinical ASD diagnosis ( $n = 21$ ). Table 1 displays the results of the group comparisons. Children fulfilling DSM-5 symptom-criteria had higher total scores on the ADI-R and CSBQ compared to children with ASD not meeting DSM-5 symptom-criteria and children with SAD. With respect to ASD symptoms as measured with the ADI-R, the DSM-5 ASD group had higher scores on the repetitive domain—but not on the social communication domain—compared to the DSM-IV ASD group and the children with SAD. The DSM-IV ASD group did not differ from the children with SAD with respect to their scores on the repetitive domain; however, their scores on the social-communication deficit domain were higher. With respect to milder ASD-related behaviors measured with the CSBQ, no differences between the three groups were found for withdrawn behavior or resistance to change, however, the DSM-5 ASD group had higher scores on the other subscales; behaviors not tuned to situation, orientation problems, problems with social understanding and stereotyped behaviors. Compared to children with SAD, the DSM-IV ASD group had higher problems scores on the subscale ‘understanding social information’, but not for the other (five) subscales.

## Discussion

Results indicate that 30 % of the children with a current ASD-classification do not meet DSM-5 symptom-criteria, mainly because they fail to meet the two-out-of-four criteria for the repetitive domain. Most of the children not meeting DSM-5 ASD symptom-criteria were diagnosed with PDD-NOS. An attempt was made to get more insight in what way children with a DSM-IV classification of ASD who did and did not meet DSM-5 symptom-criteria, and children with SAD, differed. Differences between children who did and did not meet DSM-5 ASD symptom-criteria were found for repetitive behaviors, but social-communication deficits were found to be similar. In addition, children with ASD not meeting DSM-5 symptom-criteria had more social-communication deficits than children with SAD, however, the two groups were more similar than different on other ASD aspects (repetitive behaviors and milder ASD-related problems). Based on these results, for the children with ASD not meeting symptom-criteria in DSM-5, a classification of social communication disorder (SCD) may be applicable. This disorder is defined as “a primary difficulty with pragmatics, or the social use of language and communication, as manifested by deficits in understanding and following social rules of verbal and nonverbal communication in naturalistic contexts, changing language according to the needs of the

listener or situation, and following rules for conversations and storytelling” (APA 2013, p. 48).

According to DSM-5, SCD can be differentiated from ASD by the absence of restricted/repetitive behaviors, interests and activities, and a differentiating aspect between SAD and SCD is that social-communication has always been impaired in SCD while this is not the case for SAD (APA 2013). This is what indeed was found in the current study; children meeting DSM-5 criteria differed from children not meeting DSM-5 criteria based on repetitive scores, and children with ASD not meeting DSM-5 criteria (but who may be diagnosed with SCD) differed from children with SAD based on their social-communication deficits. However, it should be noted that a limitation of the current study is that the same instrument (ADI-R) was used both for group assignment as well as some group comparisons. A consequence might be that group differences are overestimated. Indeed, less group differences were found when a parent report questionnaire for ASD symptoms, the CSBQ, was used (which was not used for group assignment). In particular, the differentiation between the children with ASD not meeting DSM-5 symptom-criteria—but who may meet SCD—and children with SAD was more difficult. A further limitation is that SCD was not formally assessed in the current study and standardized measures for establishing such a classification are currently lacking. Therefore we do not know whether or not our sample of children with ASD not meeting DSM-5 criteria will meet SCD criteria. More research is needed to examine whether ASD and SCD, as well as SCD and SAD, can be differentiated reliably and with sufficient validity; for example, do the disorders differ with respect to their etiologies, neuropsychological profile, comorbidities, and/or are they better to be seen as a continuum of (ASD) symptoms with similar underlying causes and deficits, but with symptoms varying between individuals (and over time)?

## References

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders, fifth edition*. Arlington, VA: American Psychiatric Association.
- Frazier, T. W., Youngstrom, E. A., Speer, L., Embacher, R., Law, P., Constantino, J., et al. (2012). Validation of proposed DSM-5 criteria for autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *51*, 28–40.
- Gibbs, V., Aldridge, F., Chandler, F., Witzlsperger, E., & Smith, K. (2012). Brief report: An exploratory study comparing diagnostic outcomes for autism spectrum disorders under DSM-IV-TR with the proposed DSM-5 revision. *Journal of Autism and Developmental Disorders*, *42*, 1750–1756.
- Hartley, S. L., & Sikora, D. M. (2009). Which DSM-IV-TR criteria best differentiate high-functioning autism spectrum disorder from ADHD and anxiety disorders in older children? *Autism*, *13*, 485–508.

- Hartman, C. A., Luteijn, E., Serra, M., & Minderaa, R. B. (2006). Refinement of the Children's Social Behavior Questionnaire (CSBQ): An instrument that describes the diverse problems seen in milder forms of PDD. *Journal of Autism Developmental Disorders*, *36*, 325–342.
- Hrdlicka, M., & Dudova, I. (2013). Controversies in autism: Is a broader model of social disorders needed? *Child and Adolescent Psychiatry and Mental Health*, *7*, 1–9.
- Huerta, M., Bishop, S. L., Duncan, A., Hus, V., & Lord, C. (2012). Application of DSM-5 criteria for autism spectrum disorder to three samples of children with DSM-IV diagnoses of pervasive developmental disorders. *American Journal of Psychiatry*, *169*, 1056–1064.
- Lord, C., Rutter, M., & Le Couteur, A. (1994). Autism Diagnostic Interview-Revised: A revised version of a diagnostic interview for caregivers of individuals with possible pervasive developmental disorders. *Journal of Autism and Developmental Disorders*, *24*, 659–685.
- Luteijn E., Minderaa R., & Jackson S. (2002). *Vragenlijst voor Inventarisatie van Sociaal gedrag bij Kinderen, Handleiding*. Swets & Zeitlinger, Lisse (Questionnaire of social behaviour in children, manual).
- Risi, S., Lord, C., Gotham, K., Corsello, C., Chrysler, C., Szatmari, P., et al. (2006). Combining information from multiple sources in the diagnosis of autism spectrum disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, *45*, 1094–1103.
- van Steensel, F. J. A., Bögels, S. M., & Dirksen, C. D. (2012). Anxiety and quality of life: Clinically anxious children with and without autism spectrum disorders compared. *Journal of Clinical Child and Adolescent Psychology*, *41*, 731–738.
- van Steensel, F. J. A., Bögels, S. M., & Wood, J. J. (2013). Autism spectrum traits in children with anxiety disorders. *Journal of Autism and Developmental Disorders*, *43*, 361–370.