



## Personality disorders and autism spectrum disorders: what are the connections?

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### Abstract

**Background:** The relationship between autism spectrum disorders/pervasive developmental disorders and personality disorders is not completely clear, although both concepts imply lifelong impairment. The purpose of the present study was to investigate the presence of possible personality disorders in a group of young adults with Asperger syndrome.

**Method:** Fifty-four young adults with a clinical diagnosis of Asperger syndrome were assessed with Structured Clinical Interview for DSM-IV Axis II disorders to evaluate the presence of a concomitant personality disorder and completed the Autism Spectrum Quotient to measure level of autistic features. Autism spectrum diagnosis was confirmed by Diagnostic Interview for Social and Communication Disorders with a collateral informant.

**Results:** Approximately half of the study group fulfilled criteria for a personality disorder, all belonging to cluster A or C. There was a significant difference across sex: men with Asperger syndrome meeting personality disorder criteria much more often than women with Asperger syndrome (65% vs 32%). Participants fulfilling criteria for a personality disorder showed more marked autistic features according to the Autism Spectrum Quotient.

**Conclusions:** There is a considerable overlap in symptoms between Asperger syndrome and certain personality disorders. Similarities and differences of the two concepts are discussed in the framework of the *Diagnostic and Statistical Manual of Mental Disorders* classification system.

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### 1. Introduction

Autism spectrum disorders (ASDs), classified as pervasive developmental disorders (PDDs) among Axis I disorders in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*, are relatively common social communication disorders that affect approximately 0.6% to 1% of the general population [1,2]. The ASDs/PDDs under the *DSM-IV* share a core triad of abnormalities: (1) qualitative impairments in reciprocal social interactions, (2) qualitative impairments in verbal and nonverbal

communication, and (3) restricted social imagination with repetitive and stereotyped patterns of interests and behavior. The *DSM-IV* includes autistic disorder (AD) (pervasive deficits in all 3 domains), Asperger syndrome (AS) (pervasive deficits in social interaction and behaviors in the presence of superficially normal expressive verbal development), and pervasive developmental disorder not otherwise specified (PDD-NOS) (not meeting full criteria for either AD or AS, but with pervasive deficit in social interaction), and the extremely rare variant referred to as childhood disintegrative disorder (with onset of symptoms after a few years of normal development) [3]. An AD diagnosis requires a delay in development obvious before the age of 3 years, although for AS and PDD-NOS, no specific age criteria are stipulated. The boundaries within the ASDs/PDDs are not clear and have been an issue for

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debate [4–6]. As a consequence, major modifications are suggested for the coming fifth edition of DSM (*DSM-V*), which principally involves fusion of AD, AS, PDD-NOS, and childhood disintegrative disorder into 1 integrated category, namely ASD [7]. Although PDD is the concept used in *DSM-IV*, ASD is more commonly used, particularly in clinical practice. In this article, we therefore use the term *PDD/ASD* when referring to the whole spectrum.

Personality disorders are classified on a separate Axis, Axis II, in the *DSM-IV* (as were both personality disorders [PDs] and PDDs in the *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition*). A PD is an “enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual’s culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment” [3]. Personality disorders are typically not diagnosed in children and adolescents, although no specific age criteria exist (with the exception of antisocial PD, which cannot be diagnosed in individuals younger than 18 years). Currently, 10 separate PDs are defined, grouped into 3 clusters, A to C, based on descriptive similarities. The validity of the actual PD classification has been questioned over time [8], one reason being the major overlaps between different PDs. Another weakness is the categorical approach on a truly dimensional field. These shortcomings are taken into account in the *DSM-V*, and thus important changes are being suggested, for example, 5 PD types as a replacement of 10 PDs as well as an inclusion of a dimensional rating [7].

The relationship between *DSM-IV* PDs and *PDD/ASD* is not completely clear. Although now classified as an Axis I disorder, the basic characteristics of a *PDD/ASD* (“pervasive impairment,” “abnormal development”) are in fact equal to those for Axis II disorders (“the pattern is stable and of long duration, and its onset can be traced back at least to adolescence or early adulthood”). Strictly applied, an exclusion criterion in the general PD criteria states that “the enduring pattern is not better accounted for as a manifestation or consequence of any other mental disorder,” which implies that a *PDD/ASD* diagnosis has precedence before an Axis II disorder in the *DSM* hierarchical system. Previous research on similarities and overlap is limited, although 1 focus has been on distinguishing between *PDD/ASD* and schizoid/schizotypal PD [9,10]. When Wolff [11] started her research on developmentally impaired children in the 1960s, she classified the group that she was particularly interested in as “schizoid/schizotypal.” Her follow-up studies offer colorful clinical descriptions of severely impaired children who also, in many cases, proved to have a negative outcome [12]. In the 1990s, Wolff [13] revised her previous classification and considered her study group belonging to the autism spectrum. Although being based on *DSM-III*, a chart review by Nagy and Szatmari (1986) [14] of children with schizotypal PD is still of

interest: the authors emphasize their findings regarding overlap between *PDD/ASD* and schizotypal PD, point out limitations of the *DSM* classification system, and question the term *schizotypal* as being useful. Another approach when investigating schizotypal personality traits was to compare them to autistic features in a nonclinical sample, results showing a substantial degree of overlap [15]. In another recent study, children and adolescents diagnosed with schizotypal PD were found to have high rates of autistic features [16].

The purpose of the present study was to investigate the presence of possible Axis II disorders in a group of young adults with a clinical diagnosis of AS. To have an estimation of level of autistic symptoms, a quantitative measure (the Autism Spectrum Quotient [AQ]) was added to the categorical diagnostic assessment. We are aware that the *DSM-IV* does not “allow” comorbid diagnoses of *PDD/ASD* and PD but have disregarded the exclusionary criterion for the purpose of the present study, whose main aim is to study the symptomatologic overlap between these different diagnostic concepts.

## 2. Method

### 2.1. Study group

The participants included took part in a broader study of similarities and differences between AS and schizophrenia/schizoaffective psychosis. The group reported here were the 54 adults (26 men, 28 women; mean age, 27.0 years; SD, 3.9 years) with a clinical diagnosis of AS in that study. Forty-five of these had their clinical diagnosis confirmed after Diagnostic Interview for Social and Communication Disorder (DISCO) interview with a close relative (see below). Our original aim was to recruit 30 men and 30 women with AS and equal numbers of men and women with schizophrenia/schizoaffective psychosis. An extensive report of the broader study will be presented in upcoming studies. A detailed description of all individuals eligible for this study as well as the procedure for study recruitment is presented elsewhere [17].

#### 2.1.1. Recruitment source

The 54 participants with AS were recruited from 2 different sources: (1) current or previous patients with a clinical diagnosis of AS at the Department of Adult Habilitation (DAH) in Karlstad, Värmland county, which is an outpatient clinic for individuals 19 years or older with a diagnosis of *PDD/ASD*; (2) previous patients with a clinical diagnosis of AS at the Neuropsychiatric Clinic for Children and Adolescents (NCCA) in Karlstad, which is an outpatient clinic for children and adolescents younger than 19 years with *PDD/ASD* or other neurodevelopmental problems. Both the DAH and NCCA are regional centers with a catchment area that includes the whole county of Värmland (population c. 280 000). Consequently, the participants

belonged to 1 of 3 different subgroups according to recruitment source: (1) current or previous DAH AS patient and previous NCCA AS patient; (2) current or previous DAH AS patient, never known at NCCA; and (3) previous NCCA AS patient, never known at DAH. The first of these subgroups consists of patients diagnosed with AS during childhood and with a current or previous need for any sort of professional support in adulthood, the second group consists mainly of patients diagnosed with AS in adulthood with a current or previous need for professional support after 18 years of age, and the third group consists of patients diagnosed with AS in childhood without any need or wish for professional support in adulthood (at or before the time of the present study). Fourteen participants (26%) were known at both NCCA and DAH; 36 participants (67%) were current or previous patients at DAH, never known at NCCA; and 4 participants (7%) were previous patients at NCCA, never known at DAH. The clinical AS diagnosis was made on the basis of *DSM-IV* criteria; the criteria concerning early development (D and E) were considered met when the language development and cognitive development were not markedly delayed.

#### 2.1.2. Age at AS diagnosis

Mean age at original AS diagnosis was 19.0 years (SD, 7.6 years). Seven individuals (13%) had received their AS diagnosis when they were 10 years or younger, 19 (35%) between the ages of 11 and 18 years, and 28 (52%) when they were 19 years or older.

#### 2.1.3. Procedure

After complete description of the study to the participants, written informed consent was obtained. All participants were seen personally and assessed in an outpatient setting.

### 2.2. Measures

#### 2.2.1. The Structured Clinical Interview for *DSM-IV* Axis II Disorders

The *DSM-IV* Axis-II diagnoses were assessed by the first author using the Structured Clinical Interview for *DSM-IV* Axis II Disorders (SCID-II) [18]. To make our issues possible to investigate, exclusion criteria for PDD were disregarded (criterion E in general diagnostic criteria for PDs, and criterion B for schizoid PD and schizotypal PD, respectively).

#### 2.2.2. SCID-I

Axis I psychiatric morbidity was assessed by the first author using the Structured Clinical Interview for *DSM-IV* Axis I Disorders (SCID-I) [18]. Results from the SCID-I interviews have been presented previously [17].

#### 2.2.3. Additional diagnostic data

Diagnoses of attention-deficit hyperactivity disorder (ADHD) and Tourette syndrome (not included in the SCID-I) were not reassessed systematically within the present study, but clinical diagnoses of these conditions

were drawn from medical records and confirmed by patient report.

#### 2.2.4. The Wechsler Adult Intelligence Scale, Third Edition

Global intellectual ability was measured using the full-scale Swedish version of the Wechsler Adult Intelligence Scale, Third Edition (WAIS-III) [19]. For 4 participants (1 man and 3 women), an assessment with WAIS-III was not carried out. All these 4 individuals were in the normal range of IQ according to IQ assessments carried out before the present study.

#### 2.2.5. The Diagnostic Interview for Social and Communication Disorders, 11th version

A PDD/ASD diagnosis was confirmed independently in most of the cases ( $n = 45$ ) by the second author using the eleventh version of the Diagnostic Interview for Social and Communication Disorders (DISCO-11) [20] with a collateral informant. The DISCO-11 is a semistructured interview that covers a wide range of developmental domains and with excellent psychometric properties including validity for clinical PDD/ASD diagnoses. Algorithms, based on *DSM-IV* criteria as well as *International Statistical Classification of Diseases, 10th revision*, criteria, are designed for the different diagnostic categories. The DISCO-11 interview with a parent/both parents was completed for 45 subjects. Four participants did not agree to parental interview, parents of 3 participants did not accept to take part, and another 2 have not been possible to assess because of practical circumstances. The diagnosis of AS was confirmed in all of the 45 DISCO-11–assessed cases. However, 20 of these 45 had some ( $n = 12$ ) or considerable ( $n = 8$ ) symptoms before 3 years of age and were discussed for a diagnosis of AD. However, given that symptom criteria for AS were met in all cases, the clinical AS diagnosis was considered to be confirmed in these cases as well. The DISCO-11 results were not available to the first author when she was doing the SCID interviewing.

#### 2.2.6. Autism Spectrum Quotient

The Adult AQ was developed by Baron-Cohen et al [21,22]. It is a 50-item, self-administered questionnaire for use with adults with normal intelligence to assess for the presence of traits associated with autism, originally for screening purposes. The questions assess 5 different areas, each consisting of 10 items on each: social skill, attention switching, attention to detail, communication, and imagination. Each AQ item is a brief statement followed by 4 possible ratings: “definitely agree,” “slightly agree,” “slightly disagree,” or “definitely disagree.” Each item scores 1 point if the respondent endorses the behavior either mildly or strongly, meaning that the maximum possible score is 50. A high AQ score indicates a high degree of autistic features. The AQ was administered by the second author, and these AQ results were not available to the first author when she was doing the SCID-II interviews.

Table 1  
Axis II diagnoses in 54 young adults with Asperger syndrome

Axis II diagnosis	Total (n = 54)		Women (n = 28)		Men (n = 26)	
	n	%	n	%	n	%
Cluster A						
Paranoid PD	–	–	–	–	–	–
Schizoid PD	14	26	5	18	9	36
Schizotypal PD	1	2	1	4	–	–
Cluster B						
Antisocial PD	–	–	–	–	–	–
Histrionic PD	–	–	–	–	–	–
Borderline PD	–	–	–	–	–	–
Narcissistic PD	–	–	–	–	–	–
Cluster C						
Avoidant PD	7	13	3	11	4	16
Obsessive-compulsive PD	10	19	3	11	7	27
Dependent PD	–	–	–	–	–	–

### 2.3. Ethics

The study was approved by the Medical Ethical Review Board at Uppsala.

## 3. Results

### 3.1. IQ, education, occupation, and income

#### 3.1.1. Global intellectual ability

Mean total IQ (WAIS-III) was 102 (SD, 12; range 73–143).

#### 3.1.2. Maximum educational level

Three individuals (6%) had attended special school for at least part of their education, 4 (7%) had no more than compulsory school (9 years), and 17 (31%) had studied at high school but without achieving a final degree. Thirty participants (56%) had graduated from high school, 7 of whom had gone on to university studies (with or without achieving a degree).

#### 3.1.3. Source of income and daily occupation

Thirty-two participants (59%) had a full disability pension, 6 (11%) were dependent on social security services, and 3 (6%) had a combination of disability pension and social service. Only 3 individuals (6%) had full regular employment, and 4 (7%) had supported employment. Another 4 individuals (7%) had a combination of disability pension and part-time employment, meaning that 11 participants (20%) had some kind of employment, either regular or supported. Two participants (4%) supported themselves from study grants. Twenty-two (41%) had no regular daily occupation whatsoever. Of the 7 individuals who had reached university level, 6 had a full disability pension and had either no daily occupation or some kind of sheltered/unpaid occupation.

There were no sex differences as regard the background factors reported.

### 3.2. The DSM-IV-TR PDs

Twenty-eight (52%; 19 women and 9 men) of the 54 participants did not meet criteria for any Axis II disorder. Twenty-six participants (48%; 9 women and 17 men) did meet criteria for at least 1 Axis II disorder, 5 of whom (3 women and 2 men) met criteria for at least 2 Axis II disorders. There was a significant difference across sexes, with men with AS meeting PD criteria much more often than women with AS (65% vs 32%,  $P < .05$ ,  $\chi^2$  with Yates correction).

Fourteen participants (26% of the whole AS group; 5 women and 9 men) met criteria for schizoid PD, 7 (13%; 3 women and 4 men) met criteria for avoidant PD, and 10 (19%; 3 women and 7 men) met criteria for obsessive-compulsive PD. One individual (a woman) met criteria for schizotypal PD. None met criteria for paranoid PD, antisocial PD, histrionic PD, borderline PD, narcissistic PD, or dependent PD. For distribution of Axis II diagnoses, see Table 1, and for overlap of Axis II diagnoses, see Table 2.

### 3.3. The DSM-IV PDs in relation to certain background factors

No significant difference was seen regarding age at original AS diagnosis between individuals fulfilling PD criteria and those who did not. There was no difference concerning source of income. However, compared with the total study group, a higher proportion (62%) of those fulfilling PD criteria did not have any daily occupation. For characteristics, see Table 3.

### 3.4. The DSM-IV-TR PDs in relation to ADHD and other Axis I disorders

Of 54 individuals, 16 (30%) had a clinical diagnosis of ADHD (8 men and 8 women). There was no difference in occurrence of concomitant ADHD between individuals fulfilling PD criteria and those who did not. Very high rates of SCID Axis I disorders (approximately 70%) were seen in the total study group (presented in detail in Lugnegård et al [17]); however, no difference in this respect was found across ADHD cases and the remainder of the AS group (Table 3).

### 3.5. Autism Spectrum Quotient score

The AQ score among individuals with AS also meeting criteria for a PD was significantly higher than among

Table 2  
Overlap of diagnoses in 5 individuals with more than 1 Axis II diagnosis

Case no.	Schizoid PD	Schizotypal PD	Avoidant PD	Obsessive-compulsive PD
1 (male)			X	X
2 (male)	X			X
3 (male)	X			X
4 (female)			X	X
5 (female)	X	X		X

Table 3

Characteristics for 54 individuals with Asperger syndrome with/without fulfilling criteria for PD

Characteristic	Total, n = 54		AS without PD, n = 28		AS with PD, n = 26		P
	n	%	n	%	n	%	
Age at AS diagnosis <18 y	26	48	16	62	10	38	NS
No daily occupation	22	41	6	21	16	62	<.05
ADHD	16	30	9	32	7	27	NS
Any other Axis I disorder <sup>a</sup>	41	76	20	71	21	81	NS
Recurrent hallucinations	7	13	4	14	3	12	NS

<sup>a</sup> Axis I disorder other than Asperger syndrome and ADHD. NS indicates not significant.

individuals with AS without a PD (mean, 31.5; SD 7.6 vs mean, 22.7; SD, 7.8;  $P < .001$ ). No significant difference in AQ score was found between the different PD subgroups, which may well be a consequence of small sample size (see Table 4 for details).

#### 4. Discussion

In our study group of 54 young adults with a clinical AS diagnosis, approximately half of the participants also met criteria for a PD according to *DSM-IV, text revision (DSM-IV-TR)* PD. Approximately two thirds among the men and one third among the women met such criteria. Of 10 currently defined PDs, only 4 were represented in our sample: schizoid, schizotypal (cluster A), avoidant, and obsessive-compulsive (cluster C). Not one individual in our study group met criteria for any kind of cluster B PD.

##### 4.1. Cluster A

###### 4.1.1. Schizoid PD

The *DSM-IV-TR* criterion A for schizoid PD delineates a pattern well compatible with PDD/ASD criteria. In the text manual on differential diagnosis, it is emphasized that differentiating between schizoid PD and PDD may involve great difficulty. The risk for misdiagnosis is emphasized by an exclusion criterion B, which implies that a PDD must be

excluded before establishing a diagnosis of schizoid PD. Moreover, the text manual implies that when differentiating between schizoid PD and PDD, social interaction, stereotyped behaviors, and interests are more severely impaired in PDD than in schizoid PD. This is in contrast with our results: 14 (of 54) individuals with AS also fulfilling schizoid PD criteria showed more marked autistic features according to AQ. This is also in contrast with our clinical experience; individuals with AS may have more subtle social interaction and communication problems than those delineated by the schizoid PD criteria. We believe that a substantial subgroup of people with PDD/ASD has clear “schizoid traits,” which involve a pattern of social disinterest/social detachment and mainly correspond to the “loners” according to Lorna Wing’s classification [23]. Based on our clinical experience and the findings presented here, we question the presence of “pure” schizoid PD without a concomitant PDD.

###### 4.1.2. Schizotypal PD

Criterion A of schizotypal PD includes characteristics identical with those for schizoid PD in combination with psychotic-like symptoms. Just as in the case of schizoid PD, there is an exclusion criterion B, which emphasizes that a PDD must be ruled out before assigning a diagnosis of schizotypal PD. There is considerable criterion overlap between PDD/ASD and schizotypal PD; however, the overlap is mainly caused by criteria shared with schizoid PD. Criteria unique to schizotypal PD are those related to psychotic-like experiences and magic thinking, which may well be present in people with PDD/ASD, although not among the core features. In our study group, only 1 individual met criteria for schizotypal PD. The low rate may be caused by (1) the relatively young age (schizotypal PD is believed to become more apparent with increasing age), (2) high tolerability of “odd speech” (which is relatively common in AS) by the interviewer, or (3) a true low incidence. Interestingly, recurrent hallucinations without having a psychotic disorder, which is a clear schizotypal criterion, were experienced by 7 (13%) of 54 participants.

###### 4.1.3. Paranoid PD

No individual in our study group fulfilled criteria for paranoid PD. Clinically, paranoid traits can sometimes be

Table 4

Autism Spectrum Quotient scores for 54 individuals with Asperger syndrome with/without fulfilling criteria for PD

Axis II disorder	AQ score	
	Mean	SD
No Axis II disorder (n = 28)	22.7	7.8
Any Axis II disorder (n = 26)	31.5*	7.6
Single Axis II disorder		
Schizoid PD (n = 11)	29.0	8.2
Avoidant PD (n = 5)	32.2	3.6
Obsessive-compulsive PD (n = 5)	34.0	11.4
Multiple Axis II disorder (n = 5)	33.6	6.1

\*  $P < .001$  ( $t$  test, 2 tailed); individuals with any Axis II disorder vs no Axis II disorder.

seen in people with PDD/ASD and can be understood in light of great difficulties in understanding the intention of others, a different manner of thought processing and, in some cases, negative experiences (eg, being bullied, being rejected professionally). Most likely, individuals with marked paranoid traits (whether with AS or not) do not accept participation in a clinical study, and this could be one explanation for the negative finding in this respect.

#### 4.2. Cluster B

##### 4.2.1. Borderline PD

Comparing *DSM-IV-TR* criteria for borderline PD with PDD, the clinical pictures are not strikingly similar. However, in previous assumptions by clinicians, as well as in some research, some similarities have been pointed out [24–26]. For example, major difficulties in interpersonal relationships, identity problems, and difficulties in affect regulation are said to be shared traits. Although the core features of borderline PD (impulsivity, affective instability, instability in interpersonal relationships) are not typical for PDD/ASD, coexistence cannot be ruled out.

##### 4.2.2. Antisocial PD

The diagnostic criteria of antisocial PD are principally behavioral; overt criminal and/or violent and irresponsible activities are required for the diagnosis to be established. Not surprisingly, no individual in our outpatient study group met those criteria. A more complex issue is the relationship between reduced empathy in psychopathy (related to, but not equal to, antisocial PD) and reduced empathy in PDD/ASD. A main distinction is that the manipulating manner seen in psychopathy requires good understanding of others' thoughts and feelings, which contrasts to the core difficulties of PDD/ASD. Results by Rogers et al [27] strengthen the idea that the social impairment present in PDD/ASD is distinct from that present in psychopathy, but the 2 disorders can co-occur.

##### 4.2.3. Narcissistic PD

Criteria for narcissistic PD include a pattern of grandiosity as well as an unwillingness to recognize feelings and needs of others. In theory, the core difficulties of PDD/ASD may contribute to a narcissistic approach when interpreting social situations. Although a few study participants showed some narcissistic traits during the assessment, no one met full criteria for narcissistic PD. Most likely, narcissistic PD is the PD diagnosis least valid when using measurements relying only on information from the proband, and this could have contributed to its absence in the present study.

##### 4.2.4. Histrionic PD

There is a minimum of overlap between criteria for histrionic PD and PDD. It is not likely that a person with PDD/ASD will have marked histrionic traits, although it would not be unthinkable for somebody to meet criteria for both AS and histrionic PD.

#### 4.3. Cluster C

##### 4.3.1. Avoidant PD

Criteria for avoidant PD do not necessarily entail the core features for PDD/ASD (eg, impairment in social communication and interaction and restricted repertoire of activity). When markedly avoidant behavior is present in individuals with PDD/ASD, it could rather be seen as a *consequence* of the PDD/ASD. For some individuals with AS, their disability in interpreting social cues leads to a major concern about what impression they make on others and even a disabling fear for social situations, thus increasing the risk for avoidant behavior. Moreover, elevated sensitivity to stressful environments because of visual and auditory perceptual difficulties may well contribute to avoidant behavior. Nevertheless, avoidant PD can clearly exist without the core difficulties of a PDD/ASD.

##### 4.3.2. Obsessive-compulsive PD

Criteria for obsessive-compulsive PD show substantial overlap with PDD criteria, particularly those that concern restricted behavior patterns (criterion B for AS and criterion A.3 for AD). The major difference across the 2 categories is as regard age criteria: for obsessive-compulsive PD, the onset of the behavior has to be at least “early adulthood,” whereas for PDD, a childhood onset is stipulated. In the text manual, differential diagnostic difficulties are not mentioned, and in contrast to schizoid PD and schizotypal PD, there is no exclusion criterion for PDD. As already highlighted by Fitzgerald [28], there is a clear risk for misdiagnosis if PDD/ASD is not considered in patients with obvious obsessive-compulsive traits.

##### 4.3.3. Dependent PD

Any psychiatric condition that leads to reduced ability to cope with daily tasks may superficially mimic dependent PD. Increased need for practical and/or emotional support from others is very common, but far from specific, among people with PDD/ASD. In *DSM-IV-TR* criteria for dependent PD, emphasis is made on the following: (1) that the dependency should not be a consequence of an Axis I disorder and (2) a pervasive pattern of submissive and clinging behavior should be present. Although a substantial part of participants in our study showed decreased autonomy in terms of, for example, employment, no one fulfilled criteria for dependent PD.

#### 4.4. Personality traits

Apart from the AQ measure, personality traits were not assessed dimensionally in the present study. Undoubtedly, numerous participants showed marked personality traits without fulfilling PD criteria. Most frequent of these were avoidant traits, obsessive-compulsive traits, and schizoid traits. Narcissistic and paranoid traits were also present in a number of individuals.

#### 4.5. Childhood vs adulthood aspects of DSM-IV-TR

Pervasive developmental disorders are, by definition, present from a very early age, although sometimes not recognized until adulthood. Personality disorders are usually not diagnosed before the age of 18 years; however, traits of a PD are supposed to have been present at least since adolescence or early adulthood. Assessment of PDD/ASD involves a careful developmental history with a collateral informant, preferably a parent, regardless of whether assessment is made in a child or an adult clinical setting. Without a childhood report, a PDD/ASD diagnosis is difficult, or at least uncertain, to establish. Personality disorders are mainly diagnosed in adult psychiatric settings, and most likely, a developmental history with a parent is usually not included in the standard assessment. Absence of a developmental history in a PD assessment makes it impossible to evaluate exclusion criterion E in relation to PDD. (Criterion E in general diagnostic criteria for a PD: “The enduring pattern is not better accounted for as a manifestation or consequence of any other mental disorder.”) Consequently, a PDD/ASD diagnosis will risk to be overlooked.

#### 4.6. The impact of approach

Some researchers in the PD field have taken an interest in looking for autistic features in patients with PD [16,26]. Some researchers (like us) do the opposite: investigation of presence of PD in patients with PDD/ASD [29]. Other researchers take a “neutral” approach [15,30] and focus on comparisons between measures in nonclinical populations. Undoubtedly, these different approaches influence results and interpretations. For instance, in the study by Esterberg [16] on children with schizotypal PD, subjects were recruited by newspaper announcements, aimed at parents of children with adjustment problems that consisted of a “lay description of key diagnostic criteria in schizotypal PD.” Possibly, in a different clinical setting with a clear focus on PDD/ASD, the identical description may have been used to recruit children with probable PDD/ASD, and a diagnosis of schizotypal PD would not even have been considered. As in the parable of the elephant and the blind men, we may be observing the same thing but focusing on different aspects and using different language and systems to describe it. Major changes in the *DSM-V* regarding both PD and PDD/ASD are suggested: for PD, 5 instead of 10 categories as well as a dimensional measure, and for PDD/ASD, focus on “in or out of” ASD rather than differentiating “within” ASD, as well as criteria more applicable to adolescents/adults. These coming modifications will possibly improve diagnostics in each domain; however, the current uncertainty between the 2 domains will risk to remain until we find biological markers [7,31].

#### 4.7. Limitations

Two main limitations of the study are the small sample size and a relatively low participation rate. However, previous studies in the field have usually been on even smaller and probably even less representative samples. The distribution of PDs among nonparticipants is likely to differ from the study group because some PD features certainly increase the risk of refusal to study participation. This line of reasoning is particularly relevant regarding paranoid PD, antisocial PD, and borderline PD and may have contributed to misleading results for these conditions. Ratings of PD criteria may have been influenced by the fact that the SCID interviewer is experienced especially in the field of ASD and, as a consequence, has a high tolerability for behaviors that may in other patient groups be regarded as “odd” or “eccentric.” Furthermore, mentalizing difficulties, a core feature of PDD/ASD, may well influence the ability of self-reflection, which is required at a certain level of the interview in an SCID-II assessment. Taken together, these circumstances may have led to an underestimation of number of PD criteria met in the study group. In addition, the scarcity of dimensional measures in the present study makes it impossible to draw conclusions on personality traits.

#### 4.8. Clinical implications

The information revealed by an SCID-II interview may well be helpful for understanding the individual difficulties of a person with a known AS diagnosis. Whether social interaction disabilities are mainly “avoidant” or “schizoid” in quality is of importance in clinical work, for instance, when planning interventions for, for example, school refusal or occupational rehabilitation. Certainly, it is of interest to identify obsessive-compulsive traits, especially so if they have a negative impact on daily life activities. However, an additional PD diagnosis to a PDD/ASD diagnosis does not necessarily add any relevant information.

Most importantly, it is crucial to look for PDD/ASD in adult patients with PD diagnoses or with marked personality traits within cluster A or C. Clinical awareness, a careful developmental history, and genuine knowledge about PDD/ASD are the key clues. For the individual patient, a “redefinition” from PD to a PDD/ASD will often provide a basis for a better understanding of the core problems faced by the individual with social communication impairment.

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