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ARTICLE

Level of alexithymia as a measure of personality dysfunction in avoidant personality disorder

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ABSTRACT

Background and objectives: Avoidant Personality Disorder (AvPD) is considered a mild to moderate personality disorder. However, few studies have focused on the heterogeneity of AvPD in terms of symptoms and severity. In the current study we set out to replicate and extend earlier findings showing that there is variation among patients with AvPD in terms of alexithymia and, further, that this variation is especially associated with specific facets of personality functioning and is not explained by measures of depression, symptom severity, or co-occurring personality disorder traits.

Method: We used intake data from a sample of AvPD patients ($n = 56$) who had been treated in similar outpatient services. Alexithymia was measured using the Toronto Alexithymia Scale (TAS-20). Patients filled out questionnaires that were analysed using linear regression models.

Results and conclusions: Using well-established cut-off points for low, intermediate and high levels of alexithymia we found an almost equal distribution of alexithymia groups in our sample. Alexithymia was associated with higher personality dysfunction on twelve out of sixteen facets of personality functioning. For eight of these personality facets the alexithymia total score explained significant variance even after controlling for self-reported depression, symptom severity and clinician ratings of personality disorder. Results suggest that AvPD is heterogeneous and that alexithymia may be important as an indicator of severity of specific personality dysfunction.

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Avoidant personality disorder; personality functioning; alexithymia

Background

Although Avoidant Personality Disorder (AvPD) is a very common personality disorder (PD) with high prevalence in clinical samples, it has attracted less attention than other PDs, particularly Borderline Personality Disorder (BPD). Research on AvPD has often focused on the question of how it is related to the broader category of social anxiety disorder [1]. With the AvPD diagnosis living a life in the shadow of more prominent disorders, the diagnostic construct in its own right has not been sufficiently studied [2]. AvPD as a diagnosis was originally based on Theodore Millon's description of the detached personality type [3]. Based on social learning theory Millon distinguished an actively detached pattern from a passively detached schizoid type. AvPD was first included in the DSM-III in 1980. In the DSM-5 Alternative Model of Personality Disorders (AMPD) [4], AvPD was retained as a distinct category, and on the Levels of Personality Functioning Scale (LPFS) or general PD impairment, items related to AvPD are typically scored on Level 2, reflecting moderate severity on the scale. This is in line with studies of psychosocial functioning showing that AvPD patients typically function better than patients with BPD and schizotypal personality disorder, but are worse off than patients with obsessive compulsive personality [5–7]. However, empirical findings have not consistently supported a hierarchy with AvPD as a disorder of intermediate severity [8,9]. Also, studies using personality disorder criteria to study personality dysfunction have found that some of the AvPD criteria have high loadings on the general factor of personality dysfunction [10,11]. Overall, this pattern of findings is consistent with a hybrid dimensional/categorical model in which AvPD criteria serve as useful indicators of general personality pathology but also help identify a relatively homogeneous type of personality pathology.

In the DSM-5 AMPD, the severity of a personality disorder is defined based on the severity of personality dysfunction within self (identity and self-direction) and interpersonal (empathy and intimacy) domains [4,12]. A fairly limited number of studies have used measures developed to assess LPFS and even fewer have assessed the specific AvPD impairment hypothesis suggested in the DSM-5 Section III model [13–15]. Christensen and colleagues [16] tested the Level 2 general criteria threshold using the SCID-5 AMPD in an outpatient

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sample. They found that although AvPD and BPD had similar scores on Global Assessment of Functioning, and in terms of number of symptom diagnoses, the mean LPFS scores for AvPD were below the diagnostic threshold for PD. Results consistent with this have previously been reported [17,18] and, according to Christensen et al., could indicate that LPFS does not capture impairment in AvPD specific personality functioning well. Anderson and Sellbom [19] found mixed results for the DSM-5 Section III criteria for AvPD impairment in a sample of undergraduate students. Specifically, using a self-report measure, they found some convergent support for the specific AvPD impairment criteria, but reported a lack of discriminant validity suggesting that rather than measuring disorder-specific impairment, it may be more useful to measure functional impairment more broadly by measures of quality of life and social functioning. According to Anderson and Sellbom, there is a need for further studies of the personality functioning criteria in the DSM-5 Section III model, particularly studies using clinical samples with higher levels of pathology than typically found in student and convenience samples.

From a broader psychopathology perspective, Semerari et al. [20,21] have formulated the selective impairment hypothesis of mindreading in PD as a method to separate PDs from one another and to differentiate severity within specific PD diagnoses. In support of this hypothesis, Moroni et al. [22] found that, compared to other PDs, AvPD was characterized by a compromised ability to identify one's own inner states (monitoring) and to correctly identify mental states of others (decentration). Furthermore, Johansen et al. [23] found lower levels of global affect consciousness in AvPD compared to BPD and suggested that psychotherapies for AvPD should focus on emotional experiences and be aimed at improving emotional awareness, tolerance, and expressivity.

According to Semerari et al. [20] the main monitoring disorder is alexithymia, defined by marked difficulty with acknowledging emotional content and a tendency towards concreteness of thought and lack of imagination. According to Semerari et al., there may be a group of different disorders, such as schizophrenia, AvPD and Narcissistic PD, that all share a common dysfunction in terms of monitoring. The construct of alexithymia was originally introduced by Sifneos [24] and Nemiah and Sifneos [25] and is commonly operationalized with the Toronto Alexithymia Scale-20 (TAS-20), which covers three subscales: difficulty identifying feelings, difficulty describing feelings, and an externally oriented cognitive style [26]. As such, alexithymia covers some aspects of compromised ability to identify inner states (monitoring), mindreading, or affect consciousness or, expressed more broadly, aspects of the mentalizing capacity. Notably, in the new ICD-11 classification of personality disorders, this capacity may be partially captured by the guidelines for emotional manifestations asking the clinician to assess 'Ability to recognize and acknowledge unwanted emotions (e.g. anger, sadness)' as one of several aspects of determining the severity of personality dysfunction [27].

Previous studies have found that patients with AvPD show some variability in levels of alexithymia [28–32]. Nicolò et al. [32] examined a sample of 388 people suffering from personality disorders divided into three groups (alexithymia, intermediate, no alexithymia) and explored associations with interpersonal problems, PD criteria, and symptom severity. Controlling for global symptom severity, they found that the alexithymia group and the intermediate-alexithymia group differed from the no-alexithymia group with regard to interpersonal ambivalence, need for social approval, lack of sociability, and Cluster C traits. In addition, they found that difficulty describing feelings was associated with interpersonal problems, while there were no clear connections between Cluster C traits and TAS-20 subscales. In a subsequent publication, Nicolò et al. [33] further analysed the data and found that AvPD (but not dependent, depressive, or passive-aggressive PDs) remained significantly correlated with alexithymia after they had controlled for depression. Since not all patients with AvPD are highly alexithymic, the construct may provide a useful framework for studying differences in severity specific to AvPD. However, previous studies using TAS-20 have shown that alexithymia is associated with distress or negative affectivity in patients with psychiatric disorders [34,35], and thus, any association found between alexithymia as measured by TAS-20 and personality dysfunction needs to be controlled for distress and current depressive psychopathology [36].

Based on the existing literature on the role of alexithymia in AvPD, it is reasonable to state that many patients with AvPD suffer from this core problem but also that the level of alexithymia varies, and that alexithymia is not necessarily present in AvPD. Thus, the level of alexithymia may both be a helpful indicator of general personality pathology and be helpful in differentiating different types of PDs. In this study we focus exclusively on patients with AvPD and thus cannot contribute further evidence about the specificity of alexithymia compared to other PDs.

We are interested in studying how different levels of alexithymia may be related to specific personality dysfunction severity in a Scandinavian sample of AvPD patients. This sample is suitable for this purpose because patients with comorbid BPD were systematically excluded in order to study whether more specific impairments within the AvPD diagnosis could be identified. We sought to extend Nicolò et al.'s study [32] by repeating their analyses in a more severely affected psychiatric sample of AvPD and including measures of attachment and psychosocial as well as personality functioning. Based on previous studies on severity of AvPD, our hypotheses were the following: (A) Patients with AvPD will be heterogeneous with regard to alexithymia, and differences between alexithymia groups will be significant across measures of psychopathology, and psychosocial and personality functioning; (B) Highly alexithymic patients will be characterized by higher dysfunction on specific personality facets in accordance with the DSM-5 Section III criterion A descriptors of AvPD; (C) Alexithymia will remain a significant predictor of personality functioning in patients with AvPD, even after one controls for level of distress, depression and the

number of personality disorder criteria. Lastly, we explore correlations between alexithymia subscales and characteristics of patients with high scores on the alexithymia total score in order to search for more specific patterns of psychopathology.

Method

Procedure

Data collection was part of two studies focusing on the psychopathology and treatment of AvPD. A total of 56 AvPD patients were included combining a Norwegian ($N = 26$) and a Danish ($N = 30$) sample. Patients were excluded if they had cluster A or B personality disorders, bipolar disorder, or psychotic disorders. Patients with current alcohol or other substance dependency dependence were also excluded. All patients signed informed consent forms and were assessed before treatment by trained researchers conducting personality and diagnostic interviews. The treatment settings and procedures have been described further in earlier publications [2,37].

Ethics

Study participation was voluntary, and all patients gave informed written consent before inclusion. In Norway the study was approved by the Norwegian Social Science Data Service and Regional Committee for Medical Research Ethics. In Denmark the study was approved by the Danish Data Protection Agency (RHP-2017-055, I-suite nr: 05944).

Measures

Symptom disorders and PDs were assessed using the Mini International Neuropsychiatric Interview (MINI) [38] and the Structured Clinical Interview for DSM-IV Personality Disorders [39], respectively.

Symptom load was measured by the self-report inventory Symptom Check List 90-Revised (SCL 90-R) [40]. The inventory has ten subscales based on 90 items, each rated on a 0–4 Likert scale, and a mean sum-score of all items (Global Severity Index, GSI) reflecting overall (global) symptom distress. The internal consistency (Cronbach's alpha) for the Norwegian version of SCL 90-R has been investigated, with consistency of the subscales (facets) ranging from 0.80 to 0.90 [41]. In a previous study including the Danish patients from the present study, the internal consistencies ranged from 0.70 to 0.87 [42].

Alexithymia was measured with the Toronto Alexithymia Scale (TAS-20) which has shown sufficient and highly similar psychometric properties across nationalities, including the versions in Danish and Norwegian [43]. The TAS-20 is a widely used measure of alexithymia with three subscales: difficulty describing emotions, difficulty identifying emotions, and externally oriented thinking [26]. It contains 20 items scored on a Likert scale ranging from 1 to 5, the Total score ranging from 20 to 100. We used the threshold criteria for alexithymia (≥ 61), intermediate levels (≥ 51), and low (≤ 50) [32]. This partially categorical approach assumes that there is no pure dose response of alexithymia on personality function; rather, we anticipate that levels of alexithymia are barriers to functioning only up to a certain point.

Interpersonal problems were assessed by the Circumplex of Interpersonal Problems (CIP) [44]. This is a 0–4 Likert scale 48-item self-report measure based on the Inventory of Interpersonal Problems—Circumplex (IIP–C) [45]. For the purpose of this study we used the CIP sum score, which is the mean sum score of all items and correlates at 0.99 with the total score of the IIP–C [44]. In addition, we included the following subscales based on previous significant findings in characterizing interpersonal problems of AvPD; Cold, Socially avoidant, Non-assertive and Exploitable and Overly nurturant. Internal consistencies for subscales have previously been reported for samples including the patients from the present report and have ranged from 0.68 to 0.87 [2,42].

Personality functioning was measured by the Severity Indices of Personality Problems (SIPP-118) [46]. The scale was used in the original development of the Level of Personality Functioning Scale and its items are highly consistent with the content of Criteria A in the AMPD [47,48]. The scale refers to a window of the past three months for responding. Items are scored on a Likert scale ranging from 1 to 4, with lower scores indicating more maladaptive personality functioning. Because a previous study [49] showed that the domain structure of this measure is less sound, we decided to use only facet-mean scores. Internal consistencies for the facets included in the domains range from 0.76 to 0.84 [49].

Psychosocial functioning was measured by the observer-rated Global Assessment of Functioning (GAF) [50]. The GAF includes scales for symptoms and social functioning. We used the social function score (GAF-F). At intake, a clinician evaluated the patient on the basis of a brief interview guide enquiring on the patient's functioning during the past week (Norway) or two weeks (Denmark). The scale's range is 0–100, with higher scores indicating better functioning. We regrettably do not have interrater reliability estimates for this study, but a previous investigation from Norway using generalizability theory and statistics has shown sufficient reliability and consistency of scores made by experienced clinician raters [51].

Social functioning was also rated by patient self-report using the Work and Social Adjustment Scale (WSAS) [52]. The scale contains five items rated on a Likert scale ranging from 0 to 8, with higher scores indicating greater impairment. The sum ranges from 0 to 40 and a previous study of the Norwegian version in patients with personality pathology found the internal consistency was 0.79. Empirically derived cut-off scores from this study were also used to interpret the sum score with regard to severity: mild ($\leq$15), moderate (15–30) and severe ($\geq$30) [53].

Attachment was measured using the Experiences in Close Relationships questionnaire (ECR) [54], a 36-item measure of two attachment dimensions, anxiety and avoidance, in close relationships. Statements are rated on a 7-point scale from 1 (not at all) to 7 (very much). The measure provides two 18

item mean sum scores, an Anxiety subscale and an Avoidant subscale. Previous studies using the ECR-R in Danish and Norwegian psychiatric settings have found high internal consistencies for both the Anxiety scale (0.92–0.94) and the Avoidance scale (0.90–0.92) [55,56].

Data analysis

Following Nicolò et al. [32], we divided participants into three groups based on their total TAS-20 score (no alexithymia, intermediate, high alexithymia). Our Hypothesis A simply states that these categories were non-empty, even in our clinical sample; this hypothesis was not formally tested, but visually inspected by tabulation of the alexithymia categories. We further investigated hypotheses A and B by examining the relationship between alexithymia (i.e. TAS-20 score) and interpersonal problems (CIP) as well as symptom scores (SCL-90-R, GSI and depression subscale), Attachment (ECR-R), Personality Disorder (Number of SCID-II criteria), clinician-rated global functioning (GAF-F), self-reported functioning (WSAS) and SIPP-118 personality functioning facets. These analyses were performed using linear regression models of these respective outcome measures on the continuous TAS-20 alexithymia score, with adjustment for the stratification factor of nationality (Danish, Norwegian).

For Hypothesis C, we used linear regression models of the SIPP-118 personality functioning facets on SCL-90-R, GSI and depression subscale in addition to number of SCID-II criteria as the null hypothesis and then checked for an increase in explained variance by the additional predictor, TAS-20 total. In line with the explorative nature of the present, purely observational, study, no adjustment for multiple testing was made, and missing data were not imputed (less than 2% in total). Finally, we explored associations using Pearson partial correlations between the three subscales of the TAS-20 and facets of personality functioning. For this analysis we controlled for the number of PD criteria.

Results

Forty-one (73%) patients were female, and the mean age was 28 years. Thirty percent were currently married or cohabiting, and 43% were employed or students. In addition to AvPD, nearly all patients also suffered from other mental disorders, such as anxiety disorders and major depression ($M = 1.8$, SD = 1.03). A description of psychopathology and personality functioning of the sample is provided in Table 1. The social functioning (WSAS) and symptom level (SCL GSI) of the patients are in the moderate severity range compared to patients across a broader range of PDs [9,49]. In terms of personality functioning the profile is somewhat uneven across domains, with consistently low scores on facets concerning Identity integration and Relational capacity but somewhat higher functioning on some facets belonging to the three remaining domains (Effortful control, Aggression regulation, Respect and Trustworthiness) [49,57].

Table 1. Psychopathology and personality functioning across alexithymia groups.

	No alexithymia ($N = 16$) M (SD)	Intermediate alexithymia ($N = 19$) M (SD)	High alexithymia ($N = 21$) M (SD)	Total ($N = 56$) M (SD)	*t* for TAS-20 total ($df \approx 53$)	*P* value	*No–Int* Hedges' *g*	*No–High* Hedges' *g*	*Int–High* Hedges' *g*
SCL GSI	1.4 (0.6)	1.6 (0.7)	1.5 (0.5)	1.5 (0.6)	0.86	0.39	0.31	0.18	0.16
SCL Depression	2.3 (0.8)	2.5 (0.9)	2.3 (0.6)	2.3 (0.7)	0.18	0.86	0.22	0.00	0.26
CIP Sum	1.5 (0.5)	1.7 (0.4)	1.8 (0.5)	1.7 (0.4)	2.32	0.024	0.43	0.65	0.49
CIP Cold	1.8 (0.8)	2.3 (0.9)	2.5 (1.1)	2.2 (1.0)	2.19	0.033	0.59	0.88	0.30
CIP Socially avoidant	2.7 (0.8)	2.9 (0.9)	3.0 (0.8)	2.8 (0.8)	0.30	0.77	0.23	0.37	0.12
CIP Nonassertive	2.3 (0.9)	2.5 (0.8)	2.4 (1.0)	2.4 (0.9)	0.55	0.59	0.34	0.20	0.10
CIP Exploitable	2.1 (1.0)	2.4 (0.8)	2.4 (1.0)	2.3 (0.9)	1.02	0.31	0.32	0.29	0.00
CIP Overly nurturant	1.8 (1.0)	1.6 (0.7)	1.9 (0.9)	1.7 (0.8)	1.24	0.22	0.23	0.10	0.36
ECR Avoidance	3.7 (1.2)	3.8 (0.9)	4.7 (1.3)	4.1 (1.2)	3.36	0.002	0.09	0.89	0.91
ECR Anxiety	3.7 (1.5)	4.5 (1.2)	4.3 (1.2)	4.3 (1.3)	2.14	0.038	0.60	0.48	0.17
GAF-F	49.8 (3.4)	50.9 (6.6)	50.4 (6.8)	51 (5.9)	0.82	0.61	0.19	0.10	0.07
WSAS	23.4 (7.1)	23.8 (6.0)	25.4 (6.5)	24.2 (6.4)	0.56	0.54	0.06	0.30	0.26
No PD Criteria	13.3 (5.0)	12.4 (5.9)	14.5 (6.9)	13.4 (6.0)	3.04	0.004	0.19	0.19	0.32
SIPP Self respect	1.9 (0.6)	1.9 (0.5)	2.0 (0.5)	1.9 (0.5)	0.39	0.70	0.00	0.18	0.20
SIPP Stable self-image	3.1 (0.7)	2.8 (0.5)	2.4 (0.5)	2.7 (0.6)	3.48	0.001	0.48	1.15	0.78
SIPP Enjoyment	2.2 (0.6)	2.3 (0.6)	2.2 (0.6)	2.2 (0.5)	0.06	0.95	0.16	0.00	0.16
SIPP Purposefulness	2.6 (0.5)	2.4 (0.6)	2.3 (0.5)	2.4 (0.5)	1.42	0.16	0.35	0.58	0.18
SIPP Self-reflection	2.7 (0.4)	2.6 (0.4)	2.2 (0.3)	2.5 (0.4)	4.87	0.001	0.24	1.41	1.11
SIPP Enduring relationships	2.4 (0.7)	2.3 (0.4)	2.1 (0.6)	2.2 (0.6)	2.27	0.027	0.17	0.45	0.38
SIPP Intimacy	2.3 (0.5)	2.2 (0.7)	1.9 (0.6)	2.1 (0.6)	2.89	0.006	0.16	0.70	0.45
SIPP Feeling recognized	2.8 (0.4)	2.5 (0.5)	2.4 (0.4)	2.5 (0.4)	3.16	0.003	0.64	0.97	0.43
SIPP Aggression regulation	3.8 (0.2)	3.7 (0.4)	3.6 (0.4)	3.6 (0.5)	2.16	0.035	0.30	0.59	0.24
SIPP Frustration tolerance	2.5 (0.5)	2.2 (0.5)	2.1 (0.4)	2.2 (0.5)	2.40	0.020	0.58	0.88	0.22
SIPP Respect	3.6 (0.3)	3.4 (0.5)	3.4 (0.5)	3.4 (0.5)	0.81	0.42	0.46	0.46	0.00
SIPP Cooperation	3.0 (0.5)	2.8 (0.5)	2.6 (0.6)	2.7 (0.5)	3.43	0.001	0.39	0.70	0.35
SIPP Emotional regulation	3.0 (0.6)	2.7 (0.4)	2.6 (0.5)	2.7 (0.5	2.66	0.010	0.58	0.72	0.22
SIPP Effortful control	3.3 (0.6)	3.0 (0.6)	2.9 (0.5)	3.0 (0.6)	2.62	0.011	0.49	0.72	0.18
SIPP Trustworthiness	3.3 (0.5)	3.2 (0.5)	2.9 (0.6)	3.1 (0.5)	2.53	0.014	0.20	0.70	0.53
SIPP Responsible industry	3.0 (0.6)	2.9 (0.6)	2.5 (0.5)	2.7 (0.6)	2.92	0.005	0.17	0.90	0.71

Notes: SCL: Symptom Check List; GSI: Global Severity Index; CIP: Circumplex Interpersonal Problems; ECR: Experiences Close Relationships; GAF-F: Global Assessment of Functioning; WSAS: Work and Social Adjustment Scale; No PD: Number of Personality disorder criteria; SIPP: Severity Indices of Personality Problems; The t-ratio is given for a regression model in with the continuous predictor TAS20 total; No: No alexithymia; Int: Intermediate alexithymia; High: High alexithymia. Hedges' *g*: ($g = 0.2$) small, ($g = 0.5$) medium, ($g = 0.8$) Large.

Furthermore, the sample is characterized by high levels of alexithymia, attachment insecurity, and relational problems in the lower half of the interpersonal circumplex.

Our first hypothesis states simply that patients with AvPD will be heterogeneous with regard to alexithymia and that differences between groups will be evident across clinical characteristics. We found a mean TAS total score of 57.2 (SD = 10.2). As hypothesized, considerable heterogeneity with regard to alexithymia was found, with 16 patients below the alexithymia boundary (29%), 19 in the intermediate range (34%) and 21 patients with high alexithymia (37%). On TAS-20 the mean total scores of the Norwegian and Danish samples were 59.9 (SD = 8.5) and 54.9 (SD = 11.1), respectively, but this difference was not statistically significant (t [54] = 1.89, $p = 0.063$). Furthermore, although overall significant differences between alexithymia groups were found on most measures of psychopathology and personality functioning, both the absolute and standardized differences (Hedge's g) were mostly small to moderate. However, large effect sizes were found for the CIP subscale Cold and ECR Attachment avoidance.

Our second hypothesis states that highly alexithymic patients will be characterized by higher personality dysfunction on specific personality facets in accordance with the DSM-5 Criterion A. Results did not consistently support this hypothesis. In accordance with the hypothesis, large differences across alexithymia groups were found on facets of personality dysfunction that are in accordance with some specific areas of dysfunction suggested for AvPD in Criteria A of the DSM-5; these are Stable self-image, Self-reflection, Feeling recognized, Frustration tolerance, and Responsible industry. However, not in accordance with the hypothesis, there were virtually no differences between alexithymia groups in what might be considered the most impaired and characteristic areas of personality functioning for the AvPD group: (lack of) Self-respect and Enjoyment.

Our third and final hypothesis was that alexithymia would remain a significant predictor of personality functioning even after other relevant variables had been statistically controlled for. We conducted a series of regression analyses in order to determine whether alexithymia explained a significant degree of variance in personality functioning facets in addition to symptom severity, self-reported depression, and number of PD criteria. In the first step, only the covariates were entered simultaneously, and in a second step, the TAS-20 total score was entered to determine whether alexithymia explained an additional degree of variance over and above other symptom severity, self-reported depression, and number of PD criteria.

As shown in Table 2, the TAS-20 total score contributed significantly to eight out of twelve facets of personality functioning, even after controlling for covariates. The rather low regression weights are a consequence of the different ranges of the predictor and dependent variables. For example, with each 1-unit increase in TAS-20 (range 20–100), we observed a decrease of 0.03 units in Self-reflection (range 1–4). The largest R^2 changes were observed for Self-reflection, Stable self-image and Responsible industry, suggesting that alexithymia may be particularly relevant as an indicator of severity in these facets.

Finally, associations between TAS-20 and significant personality functioning facets, attachment styles, and interpersonal problems were explored, controlling for the number of personality disorder criteria (Table 3). Consistent with the specific impairment hypothesis emphasizing monitoring as the central deficit in AvPD, moderate correlations were found between several personality functioning facets, and the TAS subscale measuring difficulties with identifying feelings.

Table 2. Regression analysis predicting personality functioning from the TAS-20 total score.

Dependent variables		B for TAS-20	R^2 (adjusted R^2) in %	R^2 Change	df	F	p Value
Self-reflection	Model 0		19 (12)				
	Model 1	−0.028	44 (38)	25	1.48	21.7	<0.001
Stable self-image	Model 0		21 (14)				
	Model 1	−0.024	32 (25)	11	1.48	7.78	0.008
Cooperation	Model 0		33 (27)				
	Model 1	−0.014	38 (32)	5	1.48	4.31	0.043
Feeling recognized	Model 0		33 (27)				
	Model 1	−0.014	39 (33)	6	1.48	5.03	0.030
Responsible industry	Model 0		4 (−4)				
	Model 1	−0.023	16 (7)	12	1.48	6.99	0.011
Intimacy	Model 0		12 (5)				
	Model 1	−0.021	20 (12)	8	1.48	5.29	0.026
Emotional regulation	Model 0		32 (26)				
	Model 1	−0.012	36 (28)	4	1.48	2.73	0.105
Effortful control	Model 0		24 (17)				
	Model 1	−0.012	27 (19)	3	1.48	2.08	0.155
Trustworthiness	Model 0		16 (9)				
	Model 1	−0.017	23 (16)	7	1.48	4.81	0.033
Frustration tolerance	Model 0		18 (11)				
	Model 1	−0.009	21 (13)	3	1.48	1.99	0.165
Enduring relationships	Model 0		16 (10)				
	Model 1	−0.020	24 (17)	8	1.48	5.30	00.026
Aggression regulation	Model 0		11 (3)				
	Model 1	−0.008	14 (5)	3	1.48	1.89	00.176

Note: Model 0 = Global Severity Index, SCL-90 depression subscale, Number of SCID-II criteria.
Model 1 = Global Severity Index, SCL-90 depression subscale, Number of SCID-II criteria, TAS-20 total score.

Table 3. Partial Correlations between TAS subscales and facets of personality functioning and interpersonal problems and attachment style.

TAS-20 scale	Identifying feelings	Describing feelings	Externally oriented thinking	Total
Stable self-image	−0.44	−0.32	−0.07	−0.42
Self-reflection	−0.56	−0.29	−0.26	−0.55
Enduring relationships	−0.12	0.38	−0.04	−0.35
Feeling recognized	−0.36	−0.25	−0.09	−0.35
Responsible industry	−0.33	−0.19	−0.22	−0.38
Frustration tolerance	−0.38	−0.04	0.03	−0.22
Emotional regulation	−0.37	−0.13	−0.03	−0.28
Effortful control	−0.39	0.06	−0.04	−0.22
Intimacy	−0.04	−0.62	−0.14	−0.34
Aggression regulation	−0.21	−0.12	−0.25	−0.28
Cooperation	−0.20	−0.23	−0.09	−0.25
Trustworthiness	−0.22	−0.15	−0.29	0.31
CIP sum score	0.23	0.26	0.04	0.24
Cold interpersonal problems	0.07	0.37	0.25	0.30
Avoidant attachment style	0.10	0.56	0.38	0.44
Anxious attachment style	0.41	0.18	−0.20	0.23

Significant associations with TAS Describing feelings were strongest for Intimacy problems and Avoidant attachment, and finally the TAS Externally oriented thinking overall showed the weakest correlations with the various personality functioning facets, however Attachment avoidance and Trustworthiness were significant.

Discussion

Previous studies have reported an association between high alexithymia and personality pathology, particularly AvPD [28–32]. Generally, alexithymia seems to be highly affected by current psychopathological distress, but unlike other personality disorders, AvPD is associated with alexithymia at all levels of distress [36]. It is plausible that at some point a withdrawn personality pattern has an impact on metacognition associated with specific impairments in the ability to monitor and describe mental states [21]. In other words, even at low levels of distress, a person characterized as withdrawn may over time become less and less capable of identifying and describing mental states because these are not shared with other people.

Similar to previous studies we found that AvPD is heterogeneous with regard to alexithymia, with almost equal distribution in the low, intermediate, and high groups [31,32]. Furthermore, we found that high alexithymia is associated with more severe interpersonal problems, insecure attachment and number of personality disorder criteria. In addition, highly alexithymic avoidant patients showed higher levels of personality dysfunction on specific personality facets when controlling for current self-reported depression and distress as well as number of clinician-rated personality disorder criteria. High levels of alexithymia in AvPD may be an indicator of high personality impairment within specific facets as measured by SIPP-118, especially pronounced for capacity to self-reflect, stability of self-image and capacity to set realistic goals and to achieve these through effective and constructive actions.

In our study, a higher level of alexithymia was also associated with the CIP subscale Cold interpersonal problems and higher level of ECR attachment avoidance. Previous studies of the association between AvPD and self-reported attachment have been inconsistent and have used different measures. Thus, AvPD has been associated with a dismissive/avoidant pattern [58–60] and with high attachment anxiety or fearful attachment style [61,62]. Interestingly, Beeney et al. [60] found that in both BPD and AvPD, attachment anxiety was mediated by problems with self-other boundaries, suggesting that both disorders share the problem of maintaining a clear sense of oneself in the presence of others (hypersensitivity). Across all alexithymia groups in our sample, attachment avoidance would be considered high, compared to most samples, whereas the level of attachment anxiety was not particularly high for the non-alexithymic group. As pointed out by Simpson and Rholes [63,64], attachment avoidance can be divided into fearful-avoidant and dismissive-avoidant. A fearful-avoidant style is associated with higher attachment anxiety and may be understood as a dismissive pattern in which deactivating strategies fail or collapse. From one point of view, fearful attachment style may be considered as being closer to secure attachment than dismissive attachment due to the less pronounced deactivation of the attachment system; from another perspective, however, it may be viewed as similar to a disorganized pattern marked by an inconsistent and failed attachment strategy.

In terms of Cold interpersonal problems, previous studies of interpersonal problems in AvPD have clearly shown that these patients present with high scores across the bottom half of the interpersonal circumplex (Cold, Socially avoidant, Non-assertive, Exploitable and Overly nurturant) [32,42,65]. The particularly high association between Cold interpersonal problems and high alexithymia has previously been noted by both Nicolò et al. [32] and Inslegers et al. [30] who also both found a correlation of approximately 0.35 between IIP lack of sociability/affiliation and problems with describing feelings. There is clearly some overlap between Cold interpersonal problems and Avoidance of attachment ($r = 0.63$ in this sample). We speculate that the CIP subscale Cold measures a broader domain of difficulties being open, warm and interested both inside and outside of attachment relationships and with direct relevance for assessment of specific AvPD impairment, perhaps especially in the area of empathy. In support of this, we found a significant correlation between Externally oriented thinking and Attachment avoidance. The

Cold interpersonal pattern identified in this and previous studies may have a negative impact on therapeutic alliance and outcome in disorders characterized by high social anxiety [42]

Regarding the specific personality functioning facets, we note how these fit quite well with the DSM 5 AMPD-specific predictions about impairments in both self and interpersonal functioning. Low self-esteem and reluctance to pursue goals (Self domain) are partially picked up by the SIPP subscales Stable self-image and Responsible industry (the capacity to set realistic goals and to achieve these through effective and constructive actions). Distorted inference of others' perspectives as negative and diminished mutuality within intimate relationships (Interpersonal domain) is identified in the SIPP subscales Self-reflection, Cooperation, Intimacy and Feeling recognized. The results support a connection between a highly vulnerable, unstable self-image, poor capacity for self-reflection, on the one hand and especially pronounced problems with identifying and describing feelings on the other. Given such a lack of awareness, it follows that feeling recognized and developing a sense of intimacy can be highly problematic, leaving the person vulnerable to problems with both self-esteem and relationship satisfaction [66,67]. Interestingly, a recent study found that early experiences of emotional and physical abuse and neglect were specifically associated with the TAS-20 subscale Difficulty describing feelings [68].

Many, if not all of the personality facets that distinguished between high and low alexithymia are evidently not specific to AvPD but also characterize other severe PDs [56]. However, the data of the current study are consistent with the basic notion that the mechanisms behind personality dysfunction may not be equivalent across disorders, and that for AvPD specifically, more severe problems with monitoring have a big impact on certain personality domains. Thus, even though low capacity for self-reflection or mentalizing also characterizes other PDs, the reasons may to some extent, be different, for example inability to differentiate or integrate, for BPD, and problems with identifying and describing feelings, for AvPD [20]. Furthermore, there is a subset of AvPD patients who are characterized by Cold interpersonal problems (e.g. reporting that they are too inclined to keep other people at a distance), Avoidant attachment, and an Externally oriented thinking style (e.g. reporting a preference for talking to other people about daily activities rather than feelings) . Such patients may exhibit more profound dysfunctions within the area of empathy. Finally, it should be noted that alexithymia was not equally important across all areas of personality functioning. Thus, we found no differences across alexithymia groups in terms of Self-respect and Enjoyment, both of which are described as characteristic of AvPD functioning in the DSM-AMPD. This finding indicates that some patients with AvPD struggle with low self-respect and limited access to positive feelings, even though their alexithymia scores are relatively low. Such patients may need to focus on other aspects than emotional processing for personality development to occur following psychotherapy.

Strengths and limitations

There are several limitations to this study, in particular low sample size and use of multiple self-report measures. Therefore, there is risk of mono-method bias causing inflated associations based on shared method variance. Also, it should be noted that without a clinical comparison group, the specificity of the findings remains unknown, as findings could potentially be representative of all PDs or, even more broadly, of an entire clinical subpopulation. Finally, TAS-20 is a self-report measure and as such has limitations in the assessment of alexithymia. As pointed out repeatedly it is somewhat problematic to ask people to make a judgement about themselves that requires a certain amount of the exact same skill that one is trying to assess, that is, whether I am able to judge my ability to feel when I suffer from lack of words for feelings [30]. On the other hand, results for samples of AvPD patients treated within a psychiatric context are rarely reported and clinical studies using measures with direct relevance to the DSM-5 AMPD model and ICD-11 are needed in order to facilitate transition from previous diagnostic systems.

Conclusion

Although low sample size prevents us from drawing any firm conclusions, the results replicates and extends previous studies showing a strong association between AvPD and alexithymia in a rare sample marked by high levels of AvPD and low levels of BPD. We found that although some AvPD patients present with moderate severity with regard to social functioning, their personality impairment may still be severe. Such differences in severity and patterns of social cognitive deficits could be important to consider in psychotherapy treatment planning and case formulation [69,70]. The results extend previous findings about AvPD by showing strong associations between high levels of alexithymia and severity of personality functioning in accordance with DSM-5 AMPD and ICD-11.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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