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Psychometric Qualities of the Dimensional Assessment of Personality Pathology – Short Form for Adolescents

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Abstract

Background: A growing body of research recognizes the occurrence and validity of personality pathology during adolescence as well as its relevance as a developmental precursor of adult personality pathology.
Objective: The present study recognizes the need for a comprehensive and concise instrument to assess the dimensions of personality pathology in adolescents. Therefore, the psychometric qualities of an abbreviated version of the Dimensional Assessment of Personality Pathology - Basic Questionnaire for Adolescents (DAPP-BQ-A), which has been denoted as the DAPP - Short Form for Adolescents (DAPP-SF-A), were examined.
Method: The factorial structure, internal consistency, test-retest reliability, discriminative validity, and classification accuracy of the DAPP-SF-A scales were examined in three samples: 1596 non-referred adolescents; 166 adolescents referred to inpatient and outpatient mental health services; and 58 referred and general population adolescents.
Results: Despite a reduction in the number of items by 50% (from 290 to 144 items), the promising psychometric qualities established for the DAPP-BQ-A were replicated for the DAPP-SF-A.
Conclusions: The results of this study are promising regarding the qualities of the DAPP-SF-A and its utility in both clinical and research settings. In addition, the equivalence of the instruments for adolescents and (young) adults enables the investigation of developmental trajectories across different life stages.

Keywords: DAPP-SF-A; personality pathology; psychometrics; adolescents; short form

Introduction

The future assessment of personality disorders (PDs) is a topic that has been frequently discussed in the recent literature (1-3). The categorical classification system as a diagnostic tool for PDs was retained in Section II of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5) (4), despite its substantial and widely recognized limitations (5-7). The growing consensus among the many alternative dimensional models of PD classification (8,9) may have contributed to the description of a hybrid model that combines categorical and dimensional systems in Section III of the DSM-5.

The Dimensional Assessment of Personality Pathology - Basic Questionnaire (DAPP-BQ; 10) can be used to assess dimensional personality traits such as those described in Section III of the DSM-5. The DAPP-BQ is a hierarchical instrument that assesses affective, cognitive, and interpersonal characteristics important to a person's mental health, adjustment, and well-being. It assesses four higher-order dimensions of personality pathology (i.e., Emotional Dysregulation, Dissocial Behavior, Inhibitedness, and Compulsivity) as well as 18 lower-order dimensions (e.g., Affective Instability, Identity Problems, Callousness, Restricted Expression). These dimensions bear close conceptual resemblance to the traits described in Section III of the DSM-5. Moreover, a joint factor analysis showed empirical convergence between components of the DAPP-BQ and the four dimensions of the Personality Inventory for DSM-5 (11), an instrument used to assess the DSM-5 trait

model (12). Evidence for the strong psychometric qualities and clinical validity of the DAPP-BQ is well established (13-20).

A growing body of research recognizes the occurrence and validity of personality pathology during adolescence as well as its relevance as a developmental precursor of adult personality pathology (21,22). Although clinicians have often been reluctant to apply PD diagnoses to younger age groups, both the *International Classification of Diseases* and the DSM-5 allow for PD diagnoses during adolescence (4,23). Until recently, there was no widely accepted, reliable, and valid instrument for the assessment of the broad range of personality pathology dimensions in adolescents. The DAPP-BQ was therefore translated and adapted for use with adolescents (24). The resulting DAPP - Basic Questionnaire for Adolescents (DAPP-BQ-A) is highly similar to its adult predecessor in terms of its concepts and design. The few adaptations that were made were aimed at ensuring age-appropriate assessment and consisted mostly of simplifications of language. Details describing the translation and adaptation procedures were presented previously (24). The DAPP-BQ-A has been found to assess dimensions of personality pathology in both referred and non-referred adolescents in a reliable and valid manner (24). In short, its factorial structure is highly similar to that reported for the adult DAPP-BQ (10); its median Cronbach's alphas were high; its average test-retest reliability was good; and several dimensions showed considerable promise for differentiating among non-referred adolescents, referred adolescents without PDs, and referred adolescents with PDs (24). Moreover, its dimensions have demonstrated significant, substantial, and conceptually meaningful relationships with interview-based PD symptoms as described in the DSM-IV as well as with the Big Five dimensions of normal personality (25,26).

However, despite the promising psychometric properties of the DAPP-BQ-A, its clinical utility is threatened by a major disadvantage. The self-report questionnaire comprises 290 items and takes approximately 50 to 60 minutes to complete. Resistance to this long format (especially when it is used for repeated assessments) as well as possible fatigue due to its length may hamper its use with adolescents. A similar problem occurs when using alternative dimensional measures to assess adolescent personality pathology. For example, although a recent study provides preliminary evidence for the psychometric quality and construct validity of the Personality Inventory for DSM-5 in adolescents (27), the instrument, which contains 220 items, is quite lengthy. Thus, the assessment of personality pathology dimensions in adolescents

may be benefitted by the development of shortened versions of established measures.

Because the need for a dimensional instrument that is both comprehensive and concise was recognized, a short form of the DAPP-BQ was recently developed for adults (28-30). The resulting DAPP - Short Form (DAPP-SF) consists of 136 of the original 290 items, a reduction of more than 50%. During the process of shortening the questionnaire as described by Van Kampen and colleagues (30), the authors took into account several possible methodological problems (31) and tackled these adequately. The most defining items were identified through principal components analyses of the items within each scale. The number of items selected per scale depended on the Cronbach's alpha coefficients of the original DAPP-BQ scales as found for a Dutch general population sample (32): for scales with alpha coefficients between .70 and .79, ten items were selected; for scales with alpha coefficients between .80 and .89, eight items were selected; and for scales with alpha coefficients of .90 or more, six items were selected. If the alpha coefficient of the shortened scales was less than .75, two items with the next highest factor saturations were added. In addition, the content of the items was taken into consideration. Items with similar wording were discarded and replaced by scale items with the next highest loadings representing different content. Each adjustment was followed by calculating the alpha coefficient to ensure that the internal consistency of the shortened scales would be at least .75.

Reports about the DAPP-SF for adults have yielded support for its adequate psychometric qualities (28-30). The factorial structure of the DAPP-SF proved almost identical to the factor structure of the full-length DAPP-BQ, and this was demonstrated to be stable across various patient and community samples. In addition, indices for convergent, discriminant, and criterion-related validity were satisfactory (28,29). Given the good psychometric characteristics of the DAPP-SF for adults, it was decided that the same items would be selected for the DAPP - Short Form for Adolescents (DAPP-SF-A).

Selecting the same items for the adolescent version as for the adult version has a clear advantage. Despite small differences in the wording of the items, it enables the comparison of personality pathology dimensions across different developmental stages. The DAPP-SF-A and the DAPP-SF would therefore be suitable as subsequent instruments in longitudinal research that includes both adolescents and (young) adults. This may enhance studies of the similarities and

dissimilarities in personality pathology across ages, both in terms of structure and level.

The aim of the present study was to examine the psychometric properties of the DAPP-SF-A among non-referred adolescents and adolescents referred for inpatient and outpatient mental health services. More specifically, the factorial structure, internal consistency, test-retest reliability, discriminative validity, and classification accuracy of the DAPP-SF-A scales were examined. It was hypothesized that the psychometric properties of the abbreviated version were comparable to those of the full-length DAPP-BQ-A (24).

Methods

Participants and Procedures

Results were obtained from three different samples. Sample 1 consisted of non-referred adolescents recruited from a public school that represented all levels of Dutch secondary education. This sample consisted of 1596 adolescents (51% male) with a mean age of 14.6 years (standard deviation [SD] = 1.7; range 11 to 20 years). Sample 2 consisted of 166 adolescents (35% male) with a mean age of 15.9 years (SD = 2.3; range 12 to 22 years) who were referred to inpatient or outpatient mental health care for a wide range of psychopathology and not specifically for personality pathology. However, 42.2% of Sample 2 met the criteria of at least one PD. The most prevalent were depressive (19.9%), borderline (16.9%), and avoidant PD (15.1%). Sample 3, which was the test-retest sample, consisted of 22 adolescents from Sample 2 and 36 adolescents from the general population who were recruited by a master's level student. The mean age of Sample 3 (26% male) was 18.7 years (SD = 2.9; range 13 to 23 years).

More detailed information about the samples and the sampling procedures (e.g., informed consent) was presented in an earlier article that described the psychometric qualities of the DAPP-BQ-A for virtually the same three samples (24). As compared with this earlier paper, small differences in the sample characteristics occurred as a result of the imputation procedures of missing items and because adolescents for whom age or PD status (in Sample 2) was missing were excluded from all analyses presented in the current study.

Measures

Dimensional Assessment of Personality Pathology - Short Form for Adolescents. To arrive at the full-length, 290-item DAPP-BQ-A, the items of its adult predecessor (10) were translated and adapted with the use of procedures similar to those described by Varni and colleagues (33). The items were first translated into Dutch, with effort made to stay as close to the original text and meaning as possible. Next, the items and instructions that were considered too difficult by pilot study respondents were simplified. In addition, a "Not applicable" option was added to the Likert-type scale for items that addressed sex, drug use, and alcohol use. After pilot testing, items were translated back into English and approved by the author of the original version (24). To arrive at the abbreviated version of the DAPP-BQ-A, the same 136 items that were selected for the DAPP-SF (30) were included. The 8 items from the DAPP-BQ-A validity scale were added, resulting in a total of 144 items, which are scored on a Likert-type scale that ranges from 1 ("Very unlike me" or "Not applicable") to 5 ("Very like me"). The allocation of items to the lower-order dimensions in the DAPP-SF-A was identical to the allocation of items in the DAPP-SF. Six lower-order dimensions are composed of 6 items, 10 are composed of 8 items, and 2 are composed of 10 items (Table 1).

Structured Clinical Interview for DSM-IV Personality Disorders. To assess the DSM-IV personality disorder symptoms in Sample 2, the Dutch version (34) of the Structured Clinical Interview for DSM-IV Personality Disorders (35) was administered by one of two trained research psychologists, who were blinded to the adolescents' DAPP-SF-A scores, during a separate interview session within the first month after referral. Similar diagnostic thresholds as those used for adults were used to assign adolescents to subsamples on the basis of their PD status. For the purpose of the present analyses, categorical diagnoses were used.

Statistical Analyses

Statistical procedures examining the psychometric qualities of the DAPP-SF-A were similar to those followed in a previous report about the psychometric qualities of the DAPP-BQ-A (24). First, missing DAPP-SF-A items (up to five per participant, with a maximum of one within a lower-order dimension) were imputed with estimated values using the expectation-maximization method. Across all three samples, for 613 participants, one or more items were imputed. Second, to evaluate the factorial structure, a principal components analysis (PCA) followed by oblimin rotation was performed on the original 18 lower-order dimensions for a combined sample of non-referred (Sample 1) and referred (Sample 2) adolescents. A parallel analysis (36) was subsequently performed to determine the number of factors to be retained in the PCA. To interpret the substantive importance of a lower-order dimension to a factor, factor

loadings with a value of .40 or higher were retained (15,37).

Subsequently, Cronbach's alpha coefficients for the lower-order dimensions were calculated separately for Samples 1 and 2. To assess 3-week test-retest reliabilities, intraclass correlation coefficients for absolute agreement were computed in a two-way random effects model for Sample 3. To examine the discriminative validity of the DAPP-SF-A dimensions, all adolescents in Samples 1 and 2 were assigned to one of three subsamples: non-referred adolescents (Sample 1), referred adolescents without a PD (Subsample 2a), and referred adolescents with a PD (Subsample 2b). Next, two multivariate analyses of covariance were conducted on the 18 lower-order and 4 higher-order dimensions, respectively, with sample membership and gender as independent variables and age as a covariate. For each separate dimension, univariate analyses of variance were conducted as follow up, and post-hoc analyses with Bonferroni corrections were used to test the significance of the differences among the three subsamples. Finally, receiver operating characteristic (ROC) analyses were used to examine the ability of the DAPP-SF-A dimensions to distinguish among samples.

Results
Factor Structure
The factor structure of the DAPP-SF-A was examined in the combined sample of referred (Sample 2) and non-referred (Sample 1) adolescents with the use of PCA (see Table 1). According to Kaiser's criterion (i.e., eigenvalues > 1), the PCA suggested a four-factor solution, with eigenvalues of 7.277, 2.531, 1.427, and 1.004 for Emotional Dysregulation, Dissocial Behavior, Inhibitedness, and Compulsivity, respectively. This solution explained 68.0% of the total variance, which was similar to the solution found for the DAPP-BQ-A. Parallel Analysis suggested to retain the first three factors. The majority of lower-order dimensions loaded predominantly on their purported factors. One exception was the lower-order dimension Restricted Expression, which loaded predominantly on Emotional Dysregulation instead of on Inhibitedness. However, this result was not found for the DAPP-BQ-A. In addition, the PCA with the DAPP-SF-A dimensions did not result in cross-loadings of .40 or higher as it did with the DAPP-BQ-A dimensions. The Narcissism dimension of the DAPP-SF-A showed a clear loading on the factor Dissocial Behavior. This was different from the Narcissism dimension of the DAPP-BQ-A, which showed a more diffuse pattern of high loadings on three of the four factors.

Internal Consistency
The internal consistency coefficients of the 18 lower-order dimensions for Sample 1 and Sample 2 are presented separately in Table 1. The internal consistency reliabilities ranged from .78 to .93 in Sample 2 (median, .85) and from .66 to .86 in Sample 1 (median, .80). These were similar to the values found for the DAPP-BQ-A in these samples (.88 and .86, respectively).

Test-Retest Reliability
The test-retest reliabilities are presented in the final column of Table 1. The interval period ranged from 16 to 31 days, with a mean of 22 days ($SD = 3$). Intraclass correlation coefficients were significant ($p < .05$) for all scales ($M = .82$). However, like that of the DAPP-BQ-A, the intraclass correlation coefficient for Intimacy Problems was relatively low (.20).

Discriminative Validity
Mean sample differences of the DAPP-SF-A higher-order and lower-order dimensions were examined between non-referred adolescents (Sample 1), referred adolescents without a PD (Subsample 2a), and referred adolescents with a PD (Subsample 2b). Table 2 presents the means and standard deviations of the lower-order and higher-order dimensions for the three samples. As a result of the large size of Sample 1, a significance level of .01 was adhered to for the reporting of significant results. The overall effect of the multivariate analysis of covariance testing for sample effects was significant for both the lower-order dimensions (Wilk's $\lambda = 0.57$; $F(36, 3480) = 31.0$; $p < .001$) and the higher-order dimensions (Wilk's $\lambda = 0.79$; $F(8, 3508) = 55.4$; $p < .001$). One-way analyses of variance conducted as a means of follow up were statistically significant for all lower-order and higher-order dimensions, except for lower-order Rejection ($p = .024$) and higher-order Inhibitedness ($p = .011$).

Table 2 also presents effect sizes as represented by partial eta-squared for gender, age, and sample. Significant gender effects were found for all but five lower-order dimensions and all but one higher-order dimension. Although they were significant, effects were small in terms of Cohen's criteria (38) for all but four dimensions; there were medium effects for Affective Instability (higher score for girls), Callousness, and Dissocial Behavior and a large effect for Conduct Problems (all higher scores for boys). All significant age effects, except for Insecure Attachment, indicated an age-related increase in scores, although effects were small or

TABLE 1. *Oblimin-Rotated Principal Component Factor Loadings for Four-Factor Structure (Samples 1 and 2, N = 1762), Internal Consistency (Cronbach's α; Sample 2 [N = 166] and Sample 1 [N = 1596]), and Test-Retest Reliability (Intraclass Correlation Coefficients; Sample 3 [N = 58]) for the Lower-Order Dimensions of the Dimensional Assessment of Personality Pathology - Short Form for Adolescents*

Dimension (no. of items)	Factor loadings for four-factor structure				Internal consistency		Test-retest reliability
	1	2	3	4	Sample 2	Sample 1	
Submissiveness (8)	**.80**	−.10	.06	−.12	.87	.78	.79
Cognitive Distortion (6)	**.79**	.06	.07	.01	.84	.78	.82
Identity Problems (6)	**.89**	.00	−.08	.05	.87	.80	.89
Affective Instability (8)	**.85**	−.00	.19	−.00	.88	.82	.91
Oppositionality (10)	**.52**	.37	.23	.28	.84	.81	.85
Anxiety (6)	**.87**	−.07	.06	−.08	.90	.83	.84
Social Avoidance (6)	**.84**	−.09	−.08	−.11	.86	.79	.90
Suspiciousness (8)	**.69**	.23	−.19	−.12	.87	.76	.87
Insecure Attachment (6)	**.64**	−.06	.38	−.08	.87	.80	.85
Narcissism (8)	.21	**.56**	.23	−.38	.80	.80	.87
Self-Harm (6)	**.70**	.03	−.24	.19	.93	.86	.91
Stimulus Seeking (8)	.07	**.68**	.12	.36	.85	.82	.88
Callousness (10)	.01	**.86**	−.06	−.09	.85	.81	.83
Rejection (8)	−.14	**.82**	.07	−.30	.82	.77	.75
Conduct Problems (8)	.05	**.75**	−.16	.28	.81	.80	.93
Restricted Expression (8)	**.64**	.11	−.27	−.04	.79	.79	.84
Intimacy Problems (8)	−.08	.04	**.86**	.04	.78	.66	.20
Compulsivity (8)	.22	.05	−.02	**.80**	.83	.80	.86
Explained Variance	40.4	14.1	7.9	5.6			

For each dimension, the highest loadings appear in bold text.
All intraclass correlation coefficients are significant at *p* < .001, except for Intimacy Problems (*p* < .05)

TABLE 2. *Mean Scores and Standard Deviations on Dimensional Assessment of Personality Pathology - Short Form for Adolescents Dimensions for Non-Referred Adolescents (Sample 1, N = 1596), Referred Adolescents Without Personality Disorders (Subsample 2a, n = 96), and Referred Adolescents With Personality Disorders (Subsample 2b, n = 70), and Effect Sizes (Partial Eta-Squared) for Gender, Age, and Sample With Contrasts*

Dimension	Sample 1		Subsample 2a		Subsample 2b		Effect Sizes			Contrasts*
	Mean	SD	Mean	SD	Mean	SD	Gender	Age	Sample	
Emotional Dysregulation	157.9	39.0	195.1	51.7	248.6	56.2	.019 G	ns	.166	1 < 2a < 2b
Submissiveness	15.9	5.0	19.5	6.6	22.9	8.2	.025 G	ns	.066	1 < 2a < 2b
Cognitive Distortion	11.0	4.3	13.1	5.2	17.5	6.2	.016 G	ns	.078	1 < 2a < 2b
Identity Problems	10.7	4.3	15.4	6.2	20.6	6.6	.015 G	ns	.176	1 < 2a < 2b
Affective Instability	18.1	6.1	23.9	7.9	30.0	7.0	.071 G	ns	.134	1 < 2a < 2b
Oppositionality	25.1	7.1	28.0	8.4	32.6	8.1	ns	.024	.034	(1 = 2a) < 2b
Anxiety	12.2	4.8	17.0	6.7	21.1	6.7	.040 G	.006	.119	1 < 2a < 2b
Social Avoidance	11.5	4.3	15.2	6.0	19.8	6.0	.012 G	ns	.123	1 < 2a < 2b
Suspiciousness	14.7	4.5	17.1	6.0	24.4	7.6	ns	ns	.146	1 < 2a < 2b
Insecure Attachment	12.7	4.7	15.8	6.1	18.7	6.8	.047 G	.004	.066	1 < 2a < 2b
Narcissism	18.6	5.7	19.0	5.8	21.5	7.3	ns	.011	.007	1 < 2b
Self-Harm	7.4	3.1	11.0	6.4	19.5	8.2	ns	ns	.303	1 < 2a < 2b
Dissocial Behavior	77.0	19.4	73.6	16.3	91.6	24.8	.131 B	.026	.028	(1 = 2a) < 2b
Stimulus Seeking	21.4	6.5	20.3	6.8	26.1	8.1	.048 B	.004	.023	(1 = 2a) < 2b
Callousness	20.7	6.4	18.7	6.3	23.1	8.9	.097 B	.015	.013	2a < 1 < 2b
Rejection	20.9	5.7	21.6	5.8	22.9	7.8	.050 B	.021	ns	1 = 2a = 2b
Conduct Problems	14.0	5.7	13.1	5.0	19.4	7.6	.158 B	.029	.044	(1 = 2a) < 2b
Inhibitedness	45.2	7.3	44.9	9.5	48.2	10.8	ns	ns	ns	1 = 2a = 2b
Restricted Expression	18.4	5.6	23.3	6.6	27.1	6.2	ns	ns	.104	1 < 2a < 2b
Intimacy Problems	26.9	4.9	21.6	6.5	21.2	7.5	.011 G	ns	.093	1 > (2a = 2b)
Compulsivity	18.4	5.7	19.7	6.3	20.5	7.0	.005 G	ns	.006	1 = 2a = 2b

B, Higher scores for boys (*p* < .01); *G,* higher scores for girls (*p* < .01); ns, not significant; *SD,* standard deviation
*With Bonferroni correction (*p* < .01)
Lower-order Compulsivity was omitted because it is identical to higher-order Compulsivity
All significant age effects, except for Insecure Attachment, reflected higher scores for older adolescents (*p* < .01)

TABLE 3. *Area Under the Receiver Operating Characteristic Curve for Dimensional Assessment of Personality Pathology - Short Form for Adolescents Dimensions for Non-referred Adolescents (Sample 1, N = 1596), Referred Adolescents (Sample 2, N = 166), Referred Adolescents Without Personality Disorders (Subsample 2a, n = 96), and Referred Adolescents With Personality Disorders (Subsample 2b, n = 70)*

Dimension	Sample 1 vs. Sample 2		Sample 1 vs. Subsample 2b		Subsample 2a vs. Subsample 2b	
	AUC	95% CI	AUC	95% CI	AUC	95% CI
Emotional Dysregulation	.79*	.74-.83	.89*	.84-.94	.77*	.69-.84
Submissiveness	.70*	.66-.76	.76*	.69-.83	.62*	.53-.71
Cognitive Distortion	.69*	.65-.74	.79*	.73-.86	.71*	.62-.79
Identity Problems	.79*	.75-.83	.88*	.82-.93	.72*	.64-.80
Affective Instability	.79*	.75-.83	.89*	.85-.93	.72*	.64-.79
Oppositionality	.67*	.62-.72	.77*	.70-.83	.66*	.58-.75
Anxiety	.77*	.72-.81	.85*	.79-.90	.67*	.59-.76
Social Avoidance	.76*	.71-.80	.86*	.81-.91	.70*	.62-.78
Suspiciousness	.72*	.67-.76	.85*	.80-.91	.77*	.70-.84
Insecure Attachment	.69*	.64-.74	.76*	.69-.82	.63*	.54-.71
Narcissism	.56*	.52-.61	.62*	.55-.69	.59	.51-.68
Self-Harm	.76*	.71-.81	.88*	.82-.93	.78*	.70-.85
Dissocial Behavior	.55	.50-.59	.68*	.61-.75	.73*	.64-.81
Stimulus Seeking	.54	.49-.59	.67*	.60-.74	.71*	.63-.79
Callousness	.47	.43-.52	.57	.50-.65	.66*	.57-.74
Rejection	.55	.50-.60	.58	.49-.66	.55	.46-.64
Conduct Problems	.57*	.52-.61	.72*	.66-.78	.76*	.69-.84
Inhibitedness	.54	.49-.59	.58	.50-.67	.58	.49-.67
Restricted Expression	.78*	.74-.82	.85*	.80-.90	.67*	.58-.75
Intimacy Problems	.27	.22-.31	.25	.18-.33	.47	.38-.56
Compulsivity	.58*	.53-.62	.59	.52-.66	.52	.43-.61

AUC, Area under the curve; *CI,* confidence interval
*p < .01
Lower-order Compulsivity was omitted because it is identical to higher-order Compulsivity

negligible in terms of Cohen's criteria. Gender and age effects were very similar to those reported for the DAPP-BQ-A. Significant overall sample effects were found for all but one lower-order dimension and all but one higher-order dimension. The final column in Table 2, which is labeled "Contrasts", shows the results of post-hoc analyses with Bonferroni corrections when controlling for age. For the majority of dimensions, referred adolescents with a PD (Subsample 2b) received the highest scores, and non-referred adolescents (Sample 1) received the lowest scores ($p < .01$). In terms of Cohen's criteria, large effects (> .138) were found for Emotional Dysregulation, Identity Problems, Self-Harm, and Suspiciousness.

Classification Accuracy
Table 3 shows the area under the receiver operating characteristic curve with accompanying 95% confidence intervals. Similar to the results obtained for the DAPP-BQ-A, Dissocial Behavior and its constituent lower-order dimensions did not show significant accuracy for the discrimination between non-referred adolescents (Sample 1) and referred adolescents (Sample 2). Unlike the results of the DAPP-BQ-A, Inhibitedness and Intimacy Problems also did not demonstrate significant accuracy. All other dimensions showed significant accuracy ($p < .01$) for discrimination between Samples 1 and 2. Eight of the lower-order dimensions showed fair to good accuracy (≥.70), with Identity Problems and Affective Instability performing particularly well

(both were .79). For distinguishing between non-referred adolescents (Sample 1) and referred adolescents with PD (Subsample 2b), all but four lower-order dimensions (Callousness, Rejection, Intimacy Problems, and Compulsivity) demonstrated significant accuracy. For the DAPP-BQ-A, non-significant accuracy was only found for Compulsivity. Several dimensions performed particularly well (≥.80); these included higher-order Emotional Dysregulation as well as lower-order Anxiety, Social Avoidance, Suspiciousness, Self-Harm, Restricted Expression, and, again, Identity Problems and Affective Instability. Finally, all but four lower-order dimensions (Narcissism, Rejection, Intimacy Problems, and Compulsivity) showed significant accuracy with regard to distinguishing between referred adolescents without PD (Subsample 2a) and referred adolescents with PD (Subsample 2b). Although none of the dimensions had an area under the curve of greater than .80, several dimensions demonstrated fair accuracy (e.g., Emotional Dysregulation, Suspiciousness, Self-Harm, and Conduct Problems).

Discussion
The aim of the present study was to examine the psychometric qualities of a comprehensive and concise instrument—the DAPP-SF-A—to assess dimensions of personality pathology in adolescents. The results seem to indicate that the DAPP-SF-A is as reliable and valid as its longer counterpart, the

DAPP-BQ-A. The results of the present study, in combination with the advantages of the smaller number of items, are promising with regard to the usefulness of the DAPP-SF-A in both clinical and research settings.

The four-factor solutions of the DAPP-SF-A resemble previously reported factor structures of the full-length versions, both the adult DAPP-BQ (13,16,17,19,32,39-41) and the adolescent DAPP-BQ-A (24). Parallel analysis demonstrated that the eigenvalue of Compulsivity did not exceed the 95th percentile random data eigenvalue. Previous studies suggested that Compulsivity stands apart from the other higher-order dimensions. Individuals with high levels of Compulsivity as assessed with the use of the DAPP-BQ-A seem to be less dysfunctional than those with high levels of Emotional Dysregulation, Dissocial Behavior, or Inhibitedness. Compulsivity thus seems to tap into adaptive rather than maladaptive compulsive behaviors (42,43). Although the assessment of compulsive behaviors seems necessary for a comprehensive representation of the full array of personality pathology (4), the present wording of items that tap into the Compulsivity factor in the DAPP-SF-A requires further investigation.

Despite overall high concordance of the factor structure reported in the present study with those found in previous studies, two findings merit further attention. First, the pattern of loadings of the DAPP-SF-A seems less diffuse than that of the DAPP-BQ-A. For example, the construct of narcissism as measured by the DAPP-SF-A loads more clearly on one factor (i.e., Dissocial Behavior) than it does as measured by the DAPP-BQ-A. This may contradict a previously expressed concern that the construct is not yet clearly defined in adolescents (24). Instead, the diffuse pattern of loadings reported in the previous study may have resulted from its conceptualization in the DAPP-BQ-A. Several previous studies in adult populations involving the use of either the DAPP-BQ or the DAPP-SF have reported high (or even highest) loadings of Narcissism on Dissocial Behavior (15-17,30). This may be caused by the genetic factor of grandiosity, which underlies the dimension of Narcissism and which loaded on the Dissocial Behavior factor (44).

A second finding involving the factor structure that merits attention is that, for the factor Inhibitedness, a high loading was found only with Intimacy Problems. Previous studies involving both adults and adolescents found high loadings for Restricted Expression as well (24,30), which is in line with expectations based on Livesley's studies (15,45). In the present study, Restricted Expression loaded most strongly on the Emotion Dysregulation factor. A previous study of adolescents using the DAPP-BQ-A (24) reported a high cross-loading of Restricted Expression on the Emotion Dysregulation factor. Perhaps in adolescents the avoidance of expression of emotions and personal information is more closely related to traits like suspiciousness, identity problems, and social avoidance.

Several other findings reported in the present study indicate that the psychometric qualities of the full-length DAPP-BQ-A (24) can be replicated for the DAPP-SF-A. Internal consistency and test-retest reliability coefficients were good, except for the test-retest reliability of lower-order Intimacy Problems. The dimensions of the DAPP-SF-A showed adequate discriminative validity. Several dimensions demonstrated large effects in the distinction between samples defined by varying severity of psychopathology. Given the fact that the DAPP-SF-A includes only half of the original number of items in the DAPP-BQ-A, these results are especially promising.

Gender and age effects on personality pathology were in line with results reported for the DAPP-BQ-A (24). In general, girls score higher on internalizing forms of personality pathology (e.g., dimensions within Emotional Dysregulation), whereas boys score higher on externalizing forms (e.g., dimensions within Dissocial Behavior). Therefore, gender effects must be accounted for when norms are developed for the DAPP-SF-A. Longitudinal studies have shown that personality pathology peaks during early adolescence and declines thereafter (46). The age effects found in the present study represented higher scores for older adolescents. However, effects were small in term of Cohen's criteria. In addition, the cross-sectional nature of the present data prevents a reliable comparison being made with previous studies that have reported longitudinal data.

With regard to classification accuracy, although the vast majority of DAPP-SF-A dimensions showed significant accuracy, they showed good accuracy ($\geq$.80) only for the distinction between non-referred adolescents and referred adolescents with a PD. However, similar results were found for the full-length DAPP-BQ-A. Therefore, it is unlikely that this should be attributed to the shortening of the questionnaire. In addition, as argued previously elsewhere (24), distinguishing among subsamples within a referred sample (e.g., among referred adolescents with or without PDs) is particularly difficult as a result of the overlap in psychopathology. In the present study, many referred adolescents without PDs demonstrated several individual PD symptoms without meeting the diagnostic threshold to qualify for a full PD

diagnosis. Alternatively, 100% of referred adolescents with PDs also qualified for Axis I diagnoses. This constitutes an intrinsically diagnostic problem that is seemingly inevitable in psychopathology research that involves referred samples.

Clinical Implications

Considering the growing evidence for the existence of personality pathology before the age of 18 years as well as the introduction of a hybrid categorical-dimensional perspective on personality pathology in the DSM-5, the DAPP-SF-A may prove to be a relevant instrument in clinical settings. It can be implemented as a standard diagnostic and evaluation tool in youth mental health services. The early detection of possible personality pathology followed by timely intervention may avert later dysfunction (21).

Limitations

The analyses reported in the present study were partly conducted with the use of the same sample that was used to examine the psychometric qualities of the DAPP-BQ-A. The use of the same dataset has an advantage in that possible differences in the results cannot be attributed to sample differences. However, it can be argued that the use of the same data set may have led to a spurious overlap between the factor structures of the DAPP-BQ-A and the DAPP-SF-A. The DAPP-SF-A is currently being examined in an independent sample. When this sample reaches an adequate size, the factor structure will be examined, and Tucker coefficients of congruence will be computed to investigate any factor similarities between the original samples and the independent sample.

Apart from several adaptations to increase the age-appropriateness of the items (24), the DAPP-SF-A investigated in the present study was comprised of the same items as the DAPP-SF for adults (30). From a developmental perspective, it may have been appropriate to use a bottom-up procedure to create a short form specifically for adolescents by applying a similar selection process for adolescents as was done for adults. However, longitudinal research into the development of personality pathology may profit from the use of identical instruments for different age groups. Similarly, if researchers from other countries wish to develop a short form of the DAPP-BQ-A, they may prefer to include the same items as the version under investigation in the present study. This may facilitate the cross-cultural comparison of data regarding personality pathology in adolescents.

Conclusion

The current findings support the reliability and validity of an abbreviated instrument—the DAPP-SF-A—to assess personality pathology dimensions in adolescents. This instrument allows for both comprehensive and concise assessment, thereby increasing the feasibility of the widespread use of the DAPP-SF-A in both research and clinical settings.

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