

Reliability and validity of the Personality Disorder Severity ICD-11 (PDS-ICD-11) scale and the Revised Personality Assessment Questionnaire for ICD-11 (PAQ-11R) in a Norwegian community sample

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Abstract

In the ICD-11, a new model for the diagnosis of personality disorders is included, consisting of an assessment of the severity of personality impairment as well as an optional evaluation of pathological personality traits. This study aimed to examine the reliability, structural validity, and convergent and discriminant validity of the Norwegian versions of the Personality Disorder Severity ICD-11 (PDS-ICD-11) scale for the assessment of personality disorder severity and the Revised Personality Assessment Questionnaire for ICD-11 (PAQ-11R) for the assessment of the ICD-11 pathological personality traits in a Norwegian community sample. The sample consisted of 295 participants (75.9% female) with a mean age of 30.0 years ($SD = 10.7$ years). The participants answered the PDS-ICD-11, PAQ-11R, Level of Personality Functioning Scale–Brief Form 2.0 (LPFS-BF 2.0), and the Personality Inventory for DSM-5–Brief Form Plus Modified (PID5BF + M). The Norwegian PDS-ICD-11 showed good reliability. Support for a unidimensional model and a high convergent correlation with the LPFS-BF 2.0 was found. The reliability analysis of the Norwegian PAQ-11R scales yielded mixed findings with suboptimal reliability estimates for the PAQ-11R detachment, disinhibition, and dissociality scales. Analyzing the structure of the PAQ-11R items, four factors emerged (negative affectivity, detachment, disinhibition, and anankastia). The PAQ-11R scales showed good convergent and, overall, adequate discriminant validity with the PID5BF + M scales. The findings support the use of the PDS-ICD-11 for assessing severity in the ICD-11 PD model in Norway. The Norwegian PAQ-11R appears to be a useful screening tool for the ICD-11 PD trait domains.

Hanna Sirnes Lorentzen and Pauline Marie Bårdsen contributed equally to this work and share first authorship.

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INTRODUCTION

The dimensional approach to the diagnosis of personality disorders (PDs) in the 11th Edition of the International Classification of Diseases (ICD-11; World Health Organization (WHO), 2024) represents a fundamental shift from the categorical model of PDs in previous editions of the ICD. In brief, the diagnostic model in ICD-11 contains a single severity dimension that is based on an assessment of the severity and pervasiveness of self and interpersonal dysfunction and its emotional, cognitive, and behavioral manifestations. In addition to severity, specifiers for five trait domains (negative affectivity, detachment, dissociality, disinhibition, and anankastia) and borderline pattern can be applied (WHO, 2024). With the new classification of PDs in ICD-11 comes the need for new assessment instruments. Existing instruments that assess PDs according to the DSM-5 alternative model for personality disorders (DSM-5 AMPD; American Psychiatric Association, 2013) can be used to diagnose the severity and trait specifiers of PD in ICD-11 (Bach & First, 2018). However, a limitation of these instruments is that they do not assess the ICD-11 model directly.

For the assessment of PD severity in ICD-11, Bach et al. (2021) developed the Personality Disorder Severity ICD-11 (PDS-ICD-11) scale. The PDS-ICD-11 is a self-report inventory with 14 items measuring self-functioning, interpersonal functioning, psychosocial functional impairment, and the regulation of emotions, cognition, and behavior. High reliability and support for the proposed unidimensional structure of the PDS-ICD-11 have been found in US, German, Spanish, and Danish samples (Bach et al., 2021, 2023; Gutiérrez et al., 2023; Zimmermann et al., 2023). However, the item that assesses harm to others has shown low factor loadings in community samples as opposed to samples, in which clinical participants were included. This item also had a high difficulty in item response theory analysis, suggesting that the usefulness of the most extreme answer option for this item is limited (Gutiérrez et al., 2023). High convergent validity with self-reports, clinician ratings, and informant reports of impairment in personality functioning has consistently been reported (Bach et al., 2021; Brown & Sellbom, 2023; Gutiérrez et al., 2023; Sellbom et al., 2024; Zimmermann et al., 2023). The PDS-ICD-11 has also shown good construct validity differentiating between patients diagnosed with a PD and those without (Bach et al., 2021) and between different levels of severity of personality impairment (Brown & Sellbom, 2023). Zimmermann et al. (2023) noted that the PDS-ICD-11 sum score was more highly correlated with internalizing than externalizing personality problems. Gutiérrez et al. (2023) found that

the borderline pattern was the best predictor of severity in PDS-ICD-11, followed by negative affectivity. The PDS-ICD-11 has been translated into Norwegian in collaboration with the authors of the original form of the inventory (Lie & Lien, 2022). However, a psychometric test of the Norwegian version of the PDS-ICD-11 is currently lacking.

Self-report measures have also been constructed for the assessment of the trait specifier for PD in ICD-11, for example, the 17-item Personality Assessment Questionnaire for ICD-11 (PAQ-11; Kim et al., 2021). In the scale development study, Kim et al. (2021) found acceptable reliability (average Cronbach's $\alpha = 0.70$), five factors in the PAQ-11 that corresponded to the five ICD-11 trait domains in exploratory factor analysis (EFA), and adequate convergent and discriminant validity of the scales with measures of the five-factor model of personality traits and the DSM-5 AMPD trait domains. Sellbom et al. (2023) found a poor model fit in confirmatory factor analysis (CFA) of the PAQ-11. An EFA showed the strongest support for a four-factor structure, reflecting four of the five trait domains in ICD-11 (i.e., negative affectivity, detachment, disinhibition, and anankastia). The dissociation items loaded on the disinhibition and detachment factors, respectively. The four factors showed relatively high intercorrelations, ranging from 0.15 to 0.71 (median = 0.41). Furthermore, Sellbom et al. (2023) examined the correlations between the PAQ-11 scales with a measure of the ICD-11 trait domains based on the DSM-5 trait model (Bach et al., 2020) and found high convergent validity with strong correlations. The PAQ-11R is a revised version of the PAQ-11, in which a disinhibition item was replaced with an item assessing dissociation for a more balanced dissociation scale (Y. R. Kim, personal communication, March 14, 2023).

The purpose of the study was to psychometrically test the Norwegian versions of the PDS-ICD-11 and PAQ-11R in a community sample of adults. Specifically, we wanted to investigate the following: (1) the reliability of the PDS-ICD-11 and PAQ-11R scales, (2) the factor structure of the PDS-ICD-11 and PAQ-11R, and (3) the convergent and discriminant validity of the Norwegian PDS-ICD-11 and PAQ-11R with measures of personality functioning and pathological personality traits, respectively.

METHODS

Participants

The sample consisted of 295 participants, of whom 224 (75.9%) were female, 63 (21.4%) male, and 8 (2.7%) identified themselves as "other." The participants' age

ranged from 18 to 67 years, with a mean age of 30.0 years ($SD = 10.7$ years). The participants were recruited among acquaintances of the researchers via social media and through information posters that were hung up on the campus of the UiT - The Arctic University of Norway (UiT). By scanning a QR code or entering the web address, the participants had access to the survey that was administered online using the digital survey tool Nettskjema. At the start of the survey, participants were informed about the purpose of the study, how long it would approximately take to complete the survey, voluntary and anonymous participation, and contact information of the researchers. Informed consent had to be provided to be able to proceed in the survey. The data protection officer at UiT confirmed that the study was anonymous. The Regional Committee for Medical and Health Research Ethics therefore assessed that the study did not require ethical approval from this entity (ref. no. 634416).

Measures

PDS-ICD-11 (Bach et al., 2021)

The PDS-ICD-11 is a 14-item self-report instrument that has been developed to assess the severity of PD in ICD-11. Ten items are bipolar, and four items are unipolar. The PDS-ICD-11 includes items assessing self-functioning, interpersonal functioning, emotional, cognitive, and behavioral manifestations of impaired personality functioning, as well as psychosocial impairment (Bach et al., 2021). Sum scores of 12, 16, and 19 indicate mild, moderate, and severe dysfunction (Bach et al., 2023).

Revised Personality Assessment Questionnaire for ICD-11 (PAQ-11R; Kim et al., 2021)

As described above, the PAQ-11R is a revised version of the PAQ-11 (Kim et al., 2021), which is a self-report inventory for assessing the ICD-11 personality traits with 17 items that are answered on a scale from 0 (never) to 4 (always). The PAQ-11R includes five scales: negative affectivity (five items), detachment (four items), dissociativity (three items), disinhibition (two items), and anankastia (four items). In addition, eight items from different trait domains can be combined into the PAQ-11R borderline feature scale. Since a Norwegian translation of the PAQ-11R was not available at the time of the study, permission from the authors of the PAQ-11 was obtained to translate the most recent version of the instrument

(PAQ-11R) into Norwegian. All three authors translated the English version of the PAQ-11R separately into Norwegian. Then the three versions were compared, discussed, and integrated into a consensus translation. Feedback on the translation was obtained from various people in the project members' circle of acquaintances. As a result, some changes were made in the Norwegian translation. The final Norwegian version was translated back into English by an independent professional translator. The authors of the PAQ-11R approved the backtranslation (Y. R. Kim & P. Tyrer, personal communication, June 29, 2023). Suggested thresholds for the different trait domains are as follows: anankastia: 7, detachment: 7, disinhibition: 4, dissociativity: 6, and negative affectivity: 10 (Kim & Tyrer, 2022).

Level of Personality Functioning Scale-Brief Form, Version 2.0 (LPFS-BF 2.0; Weekers et al., 2019)

The LPFS-BF 2.0 was used to examine the convergent validity of the Norwegian PDS-ICD-11. The LPFS-BF 2.0 assesses personality functioning according to the DSM-5 AMPD and consists of 12 items that are answered on a scale ranging from 1 (very false or often false) to 4 (very true or often true). The Norwegian translation of the instrument has shown adequate reliability and validity (Paap et al., 2024). However, the use of the subscales for self-functioning and interpersonal functioning is not recommended (Paap et al., 2024). Weekers et al. (2023) suggested threshold values of 26 (mild subclinical dysfunction), 31 (moderate dysfunction), 36 (severe dysfunction), and 41 (extreme dysfunction). In the present sample, Cronbach's α and McDonald's ω were 0.84 and 0.86, respectively.

Personality Inventory for DSM-5-Brief Form Plus Modified (PID5BF + M; Bach et al., 2020)

The PID5BF + M was used to examine the convergent and discriminant validity of the PAQ-11R scales. The PID5BF + M is based on the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012) and assesses the DSM-5 AMPD and ICD-11 personality traits with a total of 36 items, answered on a scale from 0 (very false or often false) to 3 (very true or often true). The Norwegian version of the PID5BF + M has shown good structural validity (Bach et al., 2020). In the current sample, Cronbach's α and McDonald's ω ranged from 0.69 (detachment) to 0.82 (anankastia).

	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>	α	ω
PDS-ICD-11	7.56	4.77	0.49	−0.26	0.83	0.84
LPFS-BF 2.0	20.51	5.88	0.64	−0.25	0.84	0.86
PAQ-11R						
Negative affectivity	8.93	4.34	0.29	−0.58	0.87	0.87
Detachment	4.57	2.34	0.58	0.14	0.64	0.67
Dissociality	2.40	1.49	0.48	0.00	0.37	0.54
Disinhibition	3.32	1.38	0.49	0.37	0.63	0.52 ^a
Anankastia	5.64	2.40	0.22	−0.74	0.69	0.73
Borderline feature	11.67	4.40	0.31	−0.29	0.70	0.74
PID5BF + M						
Negative affectivity	1.23	0.66	0.08	−0.69	0.80	0.81
Detachment	0.75	0.52	0.54	−0.35	0.69	0.69
Antagonism	0.85	0.50	0.50	0.13	0.71	0.72
Disinhibition	1.09	0.60	0.27	−0.55	0.76	0.76
Anankastia	1.06	0.66	0.34	−0.78	0.82	0.82
Psychoticism	0.88	0.63	0.62	−0.31	0.81	0.81

Note: *N* = 295.

Abbreviations: LPFS-BF 2.0, Level of Personality Functioning Scale–Brief Form 2.0; PAQ-11R, Personality Assessment Questionnaire for ICD-11 Revised; PID5BF + M, Personality Inventory for DSM-5 – Brief Form Plus Modified; PDS-ICD-11, Personality Disorder Severity ICD-11.

^aPolychoric correlation.

Statistical analyses

Since all questions had to be answered to proceed in the online survey, there were no missing data. The reliability of the PDS-ICD-11 and PAQ-11R was examined using Cronbach's α and McDonald's ω . Values above 0.70 for both reliability indices were considered acceptable. Because the PAQ-11R disinhibition scale has only two items, the polychoric correlation between the two items was calculated as a reliability estimate instead of McDonald's ω . A CFA was conducted to examine the structural validity of the PDS-ICD-11 and PAQ-11R. The PDS-ICD-11 and PAQ-11R items were treated as ordered categorical variables, and weighted least square mean and variance adjusted (WLSMV) estimation was used. To evaluate model fit, the Tucker–Lewis index (TLI), the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR) were used. Following the suggestions by Hu and Bentler (1999), TLI and CFI values above 0.95 and RMSEA and SRMR values below 0.06 and 0.08, respectively, were considered indicative of good model fit. Because a previous CFA showed a poor model fit for the proposed five-factor structure of the PAQ-11 (Sellbom et al., 2023), an additional EFA was planned to further examine the structural validity of the PAQ-11R. The decision on the number of factors that were extracted was based on the Empirical Kaiser

TABLE 1 Descriptive statistics of the study measures.

Criterion and parallel analysis (using 1000 simulated random data sets and the average PCA-based eigenvalues to determine the number of factors to retain). Oblique CF-Equamax rotation was used. The convergent and discriminant validity of the PDS-ICD-11 and PAQ-11R was examined using Pearson correlations. All analyses were carried out in R (version 4.3.2; R Core Team, 2023). The following packages were used for the different analyses: misty (version 0.6.2; Yanagida, 2024) for descriptive statistics, MBESS (version 4.9.3; Kelley, 2023) for the calculation of Cronbach's alpha and McDonald's omega, polycor (version 0.8–1; Fox, 2022) to compute the polychoric correlation between the two PAQ-11R disinhibition items, lavaan (version 0.6–17; Rosseel, 2012) for the CFA of the PDS-ICD-11 and the PAQ-11R items, EFAtools (version 0.4.4; Steiner & Grieder, 2022) to determine the number of factors in the PAQ-11R items, EFAutilities (version 2.1.3; Zhang et al., 2023) to conduct the EFA of the PAQ-11R items, and Hmisc (version 5.1–1; Harrell, 2023) to calculate the correlations between the PDS-ICD-11, LPFS-BF 2.0, PAQ-11R, and PID5BF + M scales.

RESULTS

Table 1 shows the means, standard deviation, skewness, and kurtosis of all study measures as well as Cronbach's

TABLE 2 Factor loadings of PAQ-11R items after CF-Equamax rotation.

Item	Scale	Four-factor model				Five-factor model				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1.	Detachment	0.01	0.03	0.51	0.03	-0.10	0.03	0.48	0.02	0.23
2.	Detachment	0.22	0.13	0.39	0.17	0.20	0.12	0.34	0.15	0.15
3.	Negative affectivity	0.69	0.09	0.09	0.11	0.78	0.05	0.00	0.05	0.09
4.	Anankastia	-0.07	0.51	-0.09	-0.04	0.18	0.52	-0.07	-0.01	-0.27
5.	Disinhibition	0.01	-0.02	-0.06	0.78	0.01	-0.02	-0.06	0.72	0.10
6.	Anankastia	0.02	0.66	-0.06	.05	-0.03	0.66	-0.06	0.05	0.09
7.	Anankastia	-0.02	0.82	0.04	-0.04	-0.03	0.80	0.04	-0.03	0.07
8.	Detachment	-0.05	-0.10	0.56	0.03	-0.02	-0.11	0.52	0.01	0.08
9.	Dissociality	-0.21	-0.05	0.64	-0.04	0.01	-0.04	0.63	-0.03	-0.15
10.	Negative affectivity	0.60	-0.09	0.23	0.15	0.63	-0.12	0.15	0.10	0.12
11.	Disinhibition	-0.13	-0.05	-0.04	0.65	-0.02	-0.05	-0.01	0.65	-0.09
12.	Negative affectivity	0.57	-0.04	0.15	0.11	0.26	-0.06	0.06	0.04	0.48
13.	Dissociality	-0.22	0.17	0.24	0.29	0.01	0.18	0.26	0.30	-0.19
14.	Dissociality	0.08	0.13	0.08	0.26	0.08	0.12	0.07	0.26	0.06
15.	Negative affectivity	0.73	0.19	-0.01	0.16	0.46	0.16	-0.09	0.11	0.40
16.	Negative affectivity	0.62	0.11	0.13	0.19	0.10	0.08	0.04	0.11	0.74
17.	Detachment	0.24	0.06	0.63	-0.02	0.22	0.05	.57	-0.03	0.19

Note: Factor loadings ≥ 0.30 in bold.

Abbreviation: PAQ-11R = Personality Assessment Questionnaire for ICD-11 Revised.

α and McDonald's ω . Using the proposed thresholds for the PDS-ICD-11, 18.3% of the sample had mild personality dysfunction, 2.0% moderate dysfunction, and 2.4% severe dysfunction. According to the suggested thresholds for the LPFS-BF 2.0, 12.5% of the participants had mild dysfunction, 6.8% moderate dysfunction, and 1.0% severe dysfunction. Using the proposed cut-offs for the PAQ-11R, 44.7% of the participants met the requirement for negative affectivity, 42.0% for disinhibition, 38.6% for anankastia, 19.3% for detachment, and 3.4% for dissociality.

The Norwegian PDS-ICD-11 showed high reliability with a Cronbach's α of 0.82 and McDonald's ω of 0.83. The Norwegian PAQ-11R negative affectivity, anankastia, and borderline feature scales had satisfactory to high reliabilities. On the other hand, the PAQ-11R detachment, dissociality, and disinhibition scales showed reliabilities of less than 0.70 in terms of both Cronbach's α and McDonald's ω . Overall, the median for Cronbach's α was 0.67 and 0.70 for McDonald's ω .

The CFA of the PDS-ICD-11 showed a good model fit for a unidimensional model (χ^2 [77] = 141.58, CFI = 0.96, TLI = 0.95, RMSEA = 0.05, SRMR = 0.08). Factor loadings were 0.50 and above, except for item 13 (harm to others) (0.37). The highest factor loadings were observed for item 14 (psychosocial impairment) (0.81) and item 1 (identity) (0.75). The median item loading was 0.60. Excluding item 13 from the analysis improved the model fit slightly (χ^2 [65] = 109.62, CFI = 0.97, TLI = 0.97, RMSEA = 0.05, SRMR = 0.07).

The results of the CFA of the PAQ-11R showed model fit indices for a five-factor model that did not meet the Hu and Bentler (1999) criteria for a good model fit (χ^2 [110] = 378.31, CFI = 0.92, TLI = 0.90, RMSEA = 0.09, SRMR = 0.09). Bartlett's test of sphericity (χ^2 [136] = 1563.06, $p < 0.001$) and the Kaiser-Meyer-Olkin criterion (KMO = 0.82) suggested that the PAQ-11R data were suitable for factor analysis. The Empirical Kaiser Criterion and parallel analysis indicated extracting four factors. In the parallel analysis, the first five observed

TABLE 3 Correlations between study measures.

	PDS-ICD-11		LPFS-BF 2.0		PAQ-11R scales			
					Negative affectivity	Detachment	Dissociality	Disinhibition
PDS-ICD-11	-							
LPFS-BF 2.0	0.80***	-						
PAQ-11R								
Negative affectivity	0.71***	0.73***	-					
Detachment	0.51***	0.55***	0.50***	-				
Dissociality	0.28***	0.30***	0.19***	0.34***	-			
Disinhibition	0.39***	0.43***	0.31***	0.15*	0.20***	-		
Anankastia	0.13*	0.23***	0.18**	0.04	0.08	0.04	-	
Borderline feature	0.71***	0.76***	0.87***	0.70***	0.38***	0.40***	0.40***	-
PID5BF + M								
Negative affectivity	0.63***	0.66***	0.70***	0.25***	0.13*	0.32***	0.32***	-
Detachment	0.50***	0.54***	0.46***	0.69***	0.28***	0.16**	0.16**	0.32***
Antagonism	0.28***	0.26***	0.13*	0.11	0.50***	0.25***	0.25***	0.16**
Disinhibition	0.45***	0.45***	0.27***	0.18**	0.26***	0.54***	0.54***	0.25***
Anankastia	0.35***	0.44***	0.37***	0.27***	0.19**	0.07	0.07	0.54***
Psychoticism	0.54***	0.51***	0.40***	0.39***	0.27***	0.27***	0.27***	0.07

Note: $N = 295$.

Abbreviations: LPFS-BF 2.0, Level of Personality Functioning Scale–Brief Form 2.0; PAQ-11R = Personality Assessment Questionnaire for ICD-11 Revised; PID-5-BF + M = Modified Personality Inventory for DSM-5 – Brief Form Plus; PDS-ICD-11 = Personality Disorder Severity ICD-11.

* $p < .05$.

*** $p < .01$.

*** $p < .001$.

TABLE 3 (Continued)

	PAQ-11R scales		PID-5-BF + M scales					
	Anankastia	Borderline feature	Negative affectivity	Detachment	Antagonism	Disinhibition	Anankastia	Psychoticism
PDS-ICD-11								
LPFS-BF 2.0								
PAQ-11R								
Negative affectivity								
Detachment								
Dissociality								
Disinhibition								
Anankastia	-							
Borderline feature	0.35***	-						

TABLE 3 (Continued)

	PAQ-11R scales		PID-5-BF + M scales					
	Anankastia	Borderline feature	Negative affectivity	Detachment	Antagonism	Disinhibition	Anankastia	Psychoticism
PID5BF + M								
Negative affectivity	0.22***	0.60***	-					
Detachment	0.01	0.57***	0.23***	-				
Antagonism	0.12*	0.21***	0.16**	0.27***	-			
Disinhibition	-0.08	0.32***	0.33***	0.30***	0.43***	-		
Anankastia	0.67***	0.51***	0.39***	0.28***	0.23***	0.10	-	
Psychoticism	0.12*	.45***	0.34***	0.44***	0.39***	0.47***	0.40***	-

Note: N = 295.

Abbreviations: LPFS-BF 2.0, Level of Personality Functioning Scale–Brief Form 2.0; PAQ-11R = Personality Assessment Questionnaire for ICD-11 Revised; PID-5-BF + M = Modified Personality Inventory for DSM-5 – Brief Form Plus; PDS-ICD-11 = Personality Disorder Severity ICD-11.

*p < .05. **p < .01. ***p < .001.

eigenvalues were 4.617, 2.073, 1.589, 1.424, and 0.957 as compared with the average eigenvalues of 1.439, 1.349, 1.279, 1.220, and 1.168 obtained from random data. Thus, the fourth observed eigenvalue was the last that was higher than the mean eigenvalue from the simulated datasets. Table 2 shows the factor loadings after CF-Equamax rotation. The items of the negative affectivity scale defined the first factor. Factor 2 was defined by items of the anankastia scale. The items of the detachment scale and one item of the dissociality scale had their highest loadings on factor 3. Factor 4 was defined by the two items of the disinhibition scale. Two items from the dissociality scale had no loadings above 0.30 on any of the four factors and loaded most highly on factor 4. The factor correlations ranged from 0.03 (factor 2 with factor 3) to 0.36 (factor 1 with factor 4) with a median of 0.20. Due to the finding that a separate dissociality factor did not emerge in the analysis, but the variance of two dissociality items was not well captured by the four-factor solution, an EFA extracting five factors was run. The results are also displayed in Table 2. The five-factor solution was similar to the four-factor solution, except that the negative affectivity factor now was split into two factors (Table 2).

The correlations between the PDS-ICD-11, LPFS-BF 2.0, PAQ-11R, and PID5BF + M scales are displayed in Table 3. The results showed that the PDS-ICD-11 had a high convergent correlation with the LPFS-BF 2.0 ($r = 0.80$). The PDS-ICD-11 was further strongly correlated with PAQ-11R borderline feature and negative affectivity ($r_s = 0.71$) and PAQ-11R detachment ($r = 0.51$) as well as PID5BF + M negative affectivity ($r = 0.63$) and PID5BF + M detachment ($r = 0.50$). When examining the convergent and discriminant validity of the PAQ-11R scales, correlations with large effect size ($r \geq 0.50$) were found between the PAQ-11R trait scales and the corresponding PID5BF + M trait scales, ranging from 0.50 (antagonism) to 0.70 (negative affectivity) with a median of 0.67. With respect to discriminant validity, the highest correlations between PAQ-11R and PID5BF + M scales that measure different constructs were between PAQ-11R negative affectivity and PID5BF + M detachment ($r = 0.46$), psychoticism ($r = .40$), and anankastia ($r = 0.37$). Overall, the median for discriminant validity correlations was 0.25.

DISCUSSION

The changes in the diagnosis of personality disorders in ICD-11 require new assessment tools for research and clinical practice. The purpose of the present study was a psychometric evaluation of the Norwegian versions of the

PDS-ICD-11 and PAQ-11R in a community sample. We aimed to examine the instruments' reliability and structural, convergent, and discriminant validity.

Consistent with findings from previous studies in other countries (e.g., Bach et al., 2021; Gutiérrez et al., 2023; Zimmermann et al., 2023), the Norwegian PDS-ICD-11 showed high reliability in terms of Cronbach's α and McDonald's ω . However, the reliability estimates of the PAQ-11R scales varied. The negative affectivity, borderline feature, and anankastia scales showed acceptable reliability with Cronbach's α and McDonald's ω values of 0.70 or above, while the reliability estimates for the PAQ-11R detachment, disinhibition, and dissociability scales were below this threshold. Kim et al. (2021) also reported lower alpha coefficients for the latter two trait domains and suggested that the low reliability could be explained by the brevity of these scales (two items) in the PAQ-11. Although the number of items for the dissociability scale has been increased from two to three items in the PAQ-11R, this change has apparently not improved the scale's reliability.

Turning to structural validity, the CFA of the Norwegian PDS-ICD-11 showed a good model fit for a unidimensional model, consistent with the assessment of PD severity in ICD-11 and with the results of the Bach et al. (2021), Gutiérrez et al. (2023), and Zimmermann et al. (2023) studies. Similar to the findings by Bach et al. (2021), Zimmermann et al. (2023), and Bach et al. (2023), the item that assesses harm to others showed a low factor loading. On the other hand, the Gutiérrez et al. (2023) study, which used a mixed clinical and community sample, found a satisfactory loading for this item, suggesting a higher factor loading in mixed or clinical samples. Importantly, assessing harm to others is essential for determining severity in the ICD-11 PD model, and the CFA results in the present study indicated a good model fit with this item included. With respect to the structural validity of the PAQ-11R, the CFA revealed model fit indices that did not meet the stringent Hu and Bentler (1999) criteria for a good model fit. The results were, however, more favorable than those in the Sellbom et al. (2023) study and would have been considered satisfactory if more liberal criteria (cf. Zimmermann et al., 2014) were used. The EFA of the PAQ-11R items suggested a four-factor solution that supported the PAQ-11R negative affectivity, anankastia, detachment, and disinhibition scales. However, the dissociability scale did not emerge as a separate factor, even when five factors were extracted. Two dissociability items had their highest loadings on the disinhibition factor, suggesting that this factor can also be interpreted as an overarching externalizing factor (cf. Mulder et al., 2011). The four-factor model of the PAQ-11R is in contrast with the scale development study

(Kim et al., 2021) but aligns with the results of the Sellbom et al. (2023) study of the PAQ-11, which also found the strongest support for four factors without a separate dissociability factor. However, the correlations between the four factors were considerably lower in the present investigation with a median of 0.20 as compared with 0.41 in the Sellbom et al. (2023) study. Different rotation methods in the two studies (promax in the Sellbom et al. (2023) study and CF-Equamax in the present study) may account for the discrepancy. Thus, the results from the current study show good structural validity of the PAQ-11R negative affectivity, anankastia, detachment, and disinhibition scales but raise questions about the structural validity of the dissociability scale. The items of the dissociability scale should be examined and possibly reformulated in a way that strengthens the structural validity of the scale.

Finally, support for good convergent validity of the Norwegian PDS-ICD-11 in the form of strong correlations with the LPFS-BF 2.0, representing a comparable self-report indicator of personality dysfunction, was found. This result is in line with findings from previous studies (e.g., Bach et al., 2021; Zimmermann et al., 2023). The best pathological trait predictors of PDS-ICD-11 severity were the PAQ-11R borderline feature and the PAQ-11R negative affectivity scales, which is consistent with previous studies on the PDS-ICD-11 (Bach et al., 2021; Gutiérrez et al., 2023; Zimmermann et al., 2023) as well as the larger research literature on the level of personality functioning, suggesting that the concept of borderline personality disorder is closely related to the general factor of personality pathology (Sharp & Wall, 2021). Considerable overlap between measures of PD severity and pathological personality traits is not a new finding and has been discussed in the research literature (Morey et al., 2022). The results from the correlation analysis further showed good convergent validity of the PAQ-11R in the form of strong correlations between the PAQ-11R trait domains and the corresponding trait domains in PID5BF + M. Moreover, most correlations between unrelated trait domains of the two measures had low to medium effect sizes, suggesting overall good discriminant validity of the PAQ-11R scales in line with the results of the scale development study (Kim et al., 2021).

The results of the study must be interpreted considering some limitations. Firstly, a convenience sample was used, which may not be representative of the larger population. The lack of a clinical sample prevented the examination of the criterion validity of the Norwegian PDS-ICD-11 and PAQ-11R. In addition, the survey did not contain any methods for screening for careless or inconsistent responding. The size of the sample was appropriate for the CFAs and correlation analyses that were

performed but relatively small for EFA. Therefore, the results of the EFA of the PAQ-11R should be interpreted with caution. Regrettably, the sample was too small to develop Norwegian norms for the PDS-ICD-11 and PAQ-11R. Another limitation of the study concerns the sole use of self-report as a method, which can potentially inflate correlations between the instruments due to shared method variance. Furthermore, the construct validity of the two instruments was investigated using only one scale for each inventory. Future research should examine the psychometric properties of the two inventories in larger, more representative samples, and clinical samples in Norway. In addition, researchers should consider combining self-report with other methods of data collection, such as clinical interviews or informant reports.

In conclusion, the study's results suggest adequate psychometric properties of the Norwegian versions of the PDS-ICD-11 and PAQ-11R. This applies especially to the PDS-ICD-11, which showed good reliability, structural validity, and convergent validity. These findings support the use of the PDS-ICD-11 for assessing PD severity according to ICD-11 in Norway. Regarding the assessment of the ICD-11 pathological personality traits, some challenges related to the reliability and structural validity of the Norwegian PAQ-11R were observed. Despite these weaknesses, the Norwegian PAQ-11R appears to be a useful screening tool for the ICD-11 PD trait specifier.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

ETHICS STATEMENT

The Regional Committee for Medical and Health Research Ethics determined that the study did not require ethical approval (ref. no. 634416).

DATA AVAILABILITY STATEMENT

The study data are available from the corresponding author upon reasonable request.

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