



Research article

Resilient, undercontrolled, and overcontrolled personality types based upon DSM-5 maladaptive personality traits

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ABSTRACT

We explored the clinical relevance of resilient, overcontrolled and undercontrolled personality types based upon DSM-5 maladaptive personality traits. We examined if these prototypes could be differentiated in terms of personality functioning, and internalizing and externalizing pathology. Self-report questionnaires and structured interviews were administered to 192 adult patients referred to a mental health care center specialized in assessment and treatment of personality disorders. Through cluster analysis we identified a resilient type with no elevation on maladaptive trait domains and showing better personality functioning and less pathology than the overcontrolled and undercontrolled types. Furthermore, the overcontrolled type had elevated Negative Affectivity and a higher prevalence of mood disorders, whereas the undercontrolled type had elevations on all maladaptive traits, with the exception of Disinhibition, and higher rates of narcissistic and borderline personality disorders. Given the differences in psychopathology between the types, identifying these types may inform treatment focus. Also, in line with a stepped care model, compared to overcontrollers, resilient types may need less intensive treatment and undercontrollers may need more intensive treatment.

1. Introduction

The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5, American Psychiatric Association [APA], 2013) features in section III an alternative model for assessing personality disorders (AMPD). This model newly introduced the distinction between two major components of personality pathology, the first being a dimensional assessment of the level of personality functioning (criterion A), thereby including a measure of severity of personality dysfunctioning (Level of Personality Functioning Scale [LPFS]; Bender et al., 2011; Morey et al., 2011). The second major component is the assessment of pathological personality traits (criterion B: Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism, also see Krueger et al., 2012), for which assessment instruments are available on the APA website (<https://www.psychiatry.org/psychiatrists/practice/dsm/educational-resources/assessment-measures>), including the Personality Inventory for DSM-5 Brief form used in the current study (PID-5-BF; Krueger et al., 2013).

These maladaptive trait domains of the AMPD correlate with the more adaptive trait domains of the Five Factor Model (FFM; Costa and McCrae, 1988; Al-Dajani et al., 2016): Neuroticism, Extraversion, Altruism and Conscientiousness (results for Openness are more inconclusive). Numerous person-centered studies have corroborated three

personality types in general population samples based upon these adaptive traits: resilient, undercontrolled and overcontrolled (RUO; e.g. Alessandri et al., 2014; Asendorpf et al., 2001; De Fruyt, Mervielde and van Leeuwen, 2002; Robins et al., 1996). Moreover, Robins et al. (1996), demonstrated the clinical relevance of RUO types in terms of differences in psychopathology. When comparing RUO types in adolescents, undercontrollers showed more externalizing problems, overcontrollers were more prone to internalizing problems and resilient types showed the least pathology. In a sample of both adolescents and adults (Asendorpf et al., 2001) resilient types were low on Neuroticism and above-average on other traits; overcontrollers were prone to internalizing problems, low on Extraversion and high on Neuroticism; and undercontrollers showed low Conscientiousness and high Neuroticism and externalizing tendencies. In this way, RUO types are of interest for clinical populations too, yet thus far studies in clinical samples were primarily limited to eating disorder and post-traumatic stress disorder samples (for an overview see Bohane et al., 2017). For example in a clinical sample of 335 Dutch female eating disordered patients (Claes et al., 2006), the overcontrolled/constricted type was characterized by relatively high Neuroticism and Conscientiousness and low scores on Openness to experience, the undercontrolled/emotionally dysregulated type by elevated scores on Neuroticism and low scores on Conscientiousness and Agreeableness,

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while the resilient profile showed no clinical elevations on the FFM scales. Studies (see Bohane et al., 2017) that measured personality disorder (PD) diagnoses more commonly found cluster C PDs (e.g. obsessive-compulsive PD, avoidant PD) in the overcontrolled types, Cluster B PDs (e.g. borderline PD, antisocial PD) were more commonly diagnosed in the undercontrolled types. One can thus expect the RUO types to be meaningful related to personality pathology. Up to date one study (Bastiaens et al., 2020) evaluated the RUO types on basis of dimensional models specifically developed for personality pathology, namely the AMPD model. Based on AMPD maladaptive trait domain clusters, they could not corroborate the overcontrolled type in a sample of non-clinical individuals. They could replicate the undercontrolled type, as well as the resilient type which was found in two versions, a resilient type showing low scores and a resilient type showing very low scores on all trait domains. Three additional types were found, which they labelled the Confident-Disagreeable, Anxious-Detached, and Anxious-Agreeable types. Differences between clusters were further explored with the Severity Indices of Personality Problems - 118 (SIPP-118; Verheul et al., 2008), a measure of severity of personality functioning (i.e. criterion A). Interestingly, four of the six clusters could be differentiated by increasing criterion A severity as shown by a gradual increase of SIPP-118 scales scores from the Very Resilient, the Resilient, the Anxious-Agreeable, to the Undercontrolled type.

A minority of studies that applied measures of AMPD criteria focused on a combination of both criteria (7.6%) (Zimmerman et al., 2019), such studies are thus sorely needed. Also, studies in which both components are being assessed have found high intercorrelations between criterion A and B, resulting in a discussion in how far the criteria can be empirically and should be conceptually disentangled. Early studies, by Hopwood et al. (2011) and Bastiaansen et al. (2013) for example, demonstrated incremental value of assessing both severity and personality traits and recommended separate assessment of severity and traits. However, for example Bastiaansen et al. (2016), on basis of hierarchical regression analyses, concluded traits and severity of dysfunction had limited incremental validity over each other and seemed redundant in an empirical way, although the authors still found the differentiation important from a conceptual viewpoint. Moreover, the authors argue that general dysfunction (criterion A) can be seen as a core component of all PDs, whereas traits (criterion B) define the specific PDs. Likewise one could assume traits are more useful to distinguish and describe personality types, like the RUO in clinical samples, whereas criterion A can be applied to see if these types can also be differentiated from each other in terms of severity of pathology, like the non-clinical study of (Bastiaens et al., 2020) seems to suggest. Given the general paucity of studies combining criterion A and B measures and complete lack of clinical RUO studies on basis of models specifically developed for personality pathology, the current study will try to corroborate the three personality types in a clinical adult sample on basis of DSM-5 criterion B traits. Since previous clinical RUO studies focused primarily on eating disorder and post-traumatic stress disorder samples, focusing on a sample with personality disorders will also extend the empirical knowledge of the RUO types. We will apply a person-centered analytic approach that describes the dynamic organization of these criteria within individuals. Given the close correspondence between the FFM and the PID-5 domains (Al-Dajani et al., 2016), we expect that the resilient, undercontrolled and overcontrolled profiles can be identified based upon the criterion B domains. In accordance with Claes et al. (2006) using FFM personality traits, overcontrolled types can be expected to be high on Negative Affectivity and having no elevations on Detachment, Antagonism and Disinhibition (High Conscientiousness has no counterpart in terms of an elevated DSM-5 pathological trait), whereas undercontrolled types will show high Antagonism and Disinhibition, in addition to high Negative Affectivity. Psychoticism cannot be considered the maladaptive variant of Openness, yet we expect this to be low for resilient types, given this is a more highly functioning personality type. Generally, we expect no elevations on maladaptive trait domains for resilient types.

To further examine the utility of criterion A and B, we will explore to what extent meaningful clinical personality types based on criterion B traits can be differentiated using criterion A. Such a distinction between the types would have important clinical implications, given severity of personality pathology has been related to treatment outcome (Bornstein, 1998) and impairment in general, social, work and leisure functioning (Hopwood et al., 2011). Resilient types can be expected to have a better treatment prognosis, than the over- and undercontrolled types that are expected to be typified by more dysfunctional profiles. More concretely, we will examine if resilient types, compared to over- and undercontrollers, show higher levels of personality functioning. Finally, we will investigate if the types found on basis of the DSM-5 AMPD traits differ in terms of internalizing versus externalizing pathology. On basis of results of Asendorph et al. (2001) we expect undercontrollers to have more externalizing pathology and overcontrollers to have more internalizing pathology. Compared to under- and overcontrollers, we expect that the resilient group will show less pathology.

2. Method

2.1. Participants

Participants were 192 treatment seeking adults referred to the Viersprong, a mental health care center in the Netherlands specialized in the assessment and treatment of adolescents and adults with PDs. Participants filled out the questionnaires as part of the standard admission procedure and provided informed consent for research purposes. Retrospective research on patients archived files does not require ethical approval under Dutch Law. All intakes took place between April 2016 and February 2017. All participants completed the PID-5-BF (Krueger et al., 2013; Dutch version: Van der Heijden et al., 2014). Of the total sample 127 (66.1%) were females. Their age ranged from 18 to 62 years old, with a mean age of 36.71 ($SD = 11.10$). Clinical characteristics of the sample are presented in Table 1. For 22 patients SCID-I and for 24 SCID-II information was not available. Generally, age was unrelated to clinical characteristics. Most patients met criteria for at least one PD (90.1%) and for at least one clinical disorder (77.1%). More frequent diagnoses in males were narcissistic and antisocial PD. More frequent diagnoses in females were borderline PD, mood disorder, anxiety disorder, and eating disorder.

2.2. Measures

DSM-5 trait domains were measured with the Personality Inventory for DSM-5 Brief Form (PID-5-BF; Krueger et al., 2013; Dutch version: Van der Heijden et al., 2014) using a total of 25 items (five per domain), computed following the APA guidelines (<http://www.psychiatry.org/File%20Library/Practice/DSM/DSM-5/ThePersonalityInventoryForDSM5BriefFormAdult.pdf>). Items are measured on 4-point Likert scales. In the current data, the domain scales showed the following Cronbach alpha values (and average inter-item correlations, given the brevity of scales): Negative Affectivity .64 (.27), Detachment .50 (.17), Antagonism .74 (.36), Disinhibition .77 (.40), and Psychoticism .74 (.37).

Next, personality functioning was measured by two instruments. The Level of Personality Functioning Scale-Brief Form 2.0 (LPFS-BF 2.0; Weekers et al., 2019) measures the LPFS as described in Section III of the DSM-5 (APA, 2013) and consists of 12 items measured on a 4-point Likert scale, clustered into two higher domains, Self-Functioning and Interpersonal Functioning. A higher score implies more impairment. Internal consistency, as measured by Cronbach's α was .82 for the LPFS-BF total scale, and .79 and .71 for the Self and Interpersonal subscales, respectively. The Severity Indices of Personality Problems Short Form (SIPP-SF; Verheul et al., 2008) is a self-report measure initially developed to follow-up treatment improvement yet showing strong content correspondence with existing criterion A measures. It is considered a strong choice for assessing personality functioning (Vaughn et al., 2020). The SIPP-SF asks the respondents to think back to the past three months and

to answer the extent to which they agree with the presented statements on a 4-point Likert scale. The measure comprises five higher-order domains labelled: (a) Self-control, (b) Identity Integration, (c) Relational Capacities, (d) Responsibility, and (e) Social Concordance. High scores indicate better adaptive functioning. In the current sample α scores were Self-Control .89, Identity Integration .89, Relational Capacities .83, Responsibility .84 and Social Concordance .84.

Internalizing and externalizing pathology was explored by the use of three instruments. The Brief Symptom Inventory (BSI, Derogatis, 1975; Dutch version: De Beurs, 2004) was used to assess symptom severity. It consists of 53 items covering nine symptom dimensions. The present study only utilized the BSI total score, which provides an index of the intensity of distress by psychological symptoms during the past week. Respondents rate each item on a 5-point scale Likert scale. Cronbach's α in the present sample was .95. The Structured Clinical Interview for DSM-IV Axis II PDs (SCID II, First et al., 1996; Dutch version: Weertman et al., 1996) was used to categorically assess PDs. PD not otherwise specified (PDNOS) was classified when 5 criteria from PDs were present (Verheul et al., 2007). Additionally, dimensional PD scores were used by summation of present PD criteria. The SCID-II has good interrater and test-retest reliability in PD samples (e.g. Maffei et al., 1997; Weertman et al., 1996) with sum ICC's reported as high as .90 for avoidant and .95 for borderline PD in a Dutch sample (Lobbestael et al., 2011). The Structured Clinical Interview for DSM-IV Axis I disorders (SCID I, First et al., 1997; Dutch version: Groenestijn et al., 1999) is a semi-structured interview designed to assess for DSM-IV Axis I disorders. The SCID-I has demonstrated good interrater reliability in a diversity of samples, especially when interviewers had received a formal training; with overall kappa .85 (Ventura et al., 1998).

2.3. Statistical analyses

First, we calculated mean scores and standard deviations of the PID-5-BF (i.e. the measure applied to estimate cluster profiles) and of all dimensionally scored measures for external validation (of the clusters).

Mean scale scores were also used to compare differences between males and females with independent samples *t* tests and Cohen's *d* was reported as effect size (with $d = .20$ small effect, $d = .50$ medium effect and $d = .80$ large effect according to Cohen, 1988). To evaluate whether age was associated with mean scale scores on the measures, Pearson correlation (*r*) was calculated. The following heuristic rules are available to interpret the effect size: $r = .10$ indicates a small effect, $r = .30$ indicates a medium effect and $r = .50$ indicates a large effect (Cohen, 1988).

Next, the cluster profiles were derived by applying a two-step clustering procedure on PID-5-BF z-scores. An agglomerative hierarchical analysis (Ward method) was combined with a non-hierarchical k - means clustering procedure in order to optimize cluster solutions (see e.g. Asendorpf et al., 2001; Santens et al., 2018). Using the Ward method, profiles of scales were clustered into preliminary groups by the use of squared Euclidian distances. Agglomeration coefficients served as a fit index for number of clusters to be retained. Each coefficient is the within-cluster sum of squares at that merging step in the clustering procedure. Because clusters that were once fused remain together in all further steps, it is possible that some profiles are not assigned to the most similar cluster. Therefore, in a second step a non-hierarchical cluster analysis (k-means) was performed, partitioning the selected number of profiles into better-fitting clusters according to their lowest Euclidean distance. The cluster centroids from the hierarchical cluster analysis were used as starting values. Subsequently, the cluster profiles were iteratively re-updated until there was minimal distance between the cluster centroids. We selected the cluster solution which was the best choice between parsimony and fit and the most optimal cluster solution based on comparability of cluster solutions in previous research. We applied a discriminant analysis to the k-means analysis to examine if the solution yields well defined clusters. To validate the clusters (cluster type being the independent variable) on external variables we used MANOVAs with LPFS-BF 2.0, SIPP-SF, BSI and dimensional SCID-II scores as dependent variables. To examine whether the SCID-I and SCID-II diagnoses and the cluster groups were significantly associated, the Fisher (-Freeman-Halton) exact test statistic was calculated.

Table 1. Clinical characteristics.

SCID Diagnosis	N (%)	n	n	Gender Difference χ^2 (asymptotic significance)	Pearson <i>r</i> with age (approximate significance)
PDs (N = 168)	Total	Males	Females		
Avoidant PD	35 (20.8)	13	22	.04 (.843)	-.08 (.278)
Dependent PD	4 (2.4)	0	4	2.28 (.131)	-.02 (.766)
Obsessive-compulsive PD	23 (13.7)	9	14	.14 (.713)	.01 (.856)
Paranoid PD	2 (1.2)	0	2	1.12 (.289)	-.08 (.330)
Schizotypal PD	0 (0.0)	0	0	-	-
Schizoid PD	0 (0.0)	0	0	-	-
Histrionic PD	1 (0.6)	0	1	.56 (.455)	.14 (.080)
Narcissistic PD	9 (5.4)	8	1	11.71 (.001)	.01 (.861)
Borderline PD	62 (36.9)	11	51	13.82 (<.001)	-.07 (.355)
Antisocial PD	5 (3.0)	4	1	4.40 (.036)	.07 (.392)
PD-NOS	73 (43.5)	24	49	.45 (.501)	-.04 (.655)
Any PD	153 (91.1)	52	101	2.23 (.136)	-.10 (.184)
Clinical disorders (N = 170)					
Mood disorder	90 (52.9)	24	66	6.23 (.013)	-.09 (.259)
Anxiety disorder	58 (34.1)	13	45	6.40 (.011)	-.12 (.108)
Substance use disorder	18 (10.6)	5	13	.50 (.480)	.08 (.320)
Psychotic disorder	1 (0.6)	0	1	.55 (.459)	-.02 (.834)
Somatiform disorder	18 (10.6)	4	14	1.51 (.220)	-.07 (.340)
Eating disorder	16 (9.4)	0	16	9.63 (.002)	-.22 (.005)
Any clinical disorder	131 (77.1)	37	94	12.43 (<.0001)	-.13 (.089)

PD = personality disorder; NOS = not otherwise specified; The sum of the number of patients across the different diagnostic groups is higher than the total number of patients because of comorbidity.

Table 2. Descriptive statistics.

Mean scale scores	Total Mean (SD)	Males Mean (SD)	Females Mean (SD)	<i>t</i>	<i>d</i> _{gender}	<i>r</i> _{age}
PID-5-BF	<i>N</i> = 192	<i>n</i> = 65	<i>n</i> = 127			
Negative Affectivity		1.80 (.67)	2.13 (.57)	3.574***	.55	-.08
Detachment		1.29 (.63)	1.36 (.57)	.779	.12	-.07
Antagonism		.84 (.67)	.62 (.51)	-2.629**	-.40	-.08
Disinhibition		1.03 (.76)	1.14 (.66)	1.046	.16	-.03
Psychoticism		.98 (.67)	1.25 (.71)	2.491*	.38	-.17*
LPFS-BF 2.0	<i>n</i> = 192	<i>n</i> = 65	<i>n</i> = 127			
Total		2.64 (.59)	2.93 (.47)	3.659*	.56	-.13
Self		2.94 (.71)	3.36 (.52)	4.218*	.71	-.16*
Interpersonal		2.34 (.65)	2.50 (.61)	1.595	.24	-.05
SIPP-SF	<i>n</i> = 178	<i>n</i> = 58	<i>n</i> = 120			
Self-Control		2.72 (.72)	2.43 (.64)	-2.749**	-.44	-.02
Identity Integration		2.38 (.73)	1.87 (.54)	-4.681*	-.83	.24**
Responsibility		2.89 (.68)	2.91 (.59)	.177	.03	.01
Relational Capacities		2.32 (.59)	2.21 (.62)	-1.151	-.18	.21**
Social Concordance		2.94 (.60)	2.92 (.59)	-.221	-.04	.03
BSI	<i>n</i> = 183	<i>n</i> = 61	<i>n</i> = 122			
Total		1.41 (.70)	1.96 (.62)	5.439*	.85	-.15*
SCID-II	<i>n</i> = 168	<i>n</i> = 60	<i>n</i> = 108			
Avoidant		1.87 (2.22)	2.15 (2.02)	.836	.14	-.19*
Dependent		.33 (.86)	.63 (1.20)	1.683	.27	-.01
Obsessive-compulsive		1.57 (1.91)	1.57 (1.64)	.026	.00	.04
Paranoid		.18 (.65)	.25 (.88)	.515	.08	-.05
Schizotypal		.03 (.18)	.06 (.37)	.621	.10	.08
Schizoid		.00 (.00)	.04 (.27)	1.058	.17	-.12
Histrionic		.10 (.35)	.28 (.91)	1.807	.24	.07
Narcissistic		1.50 (1.99)	.28 (.91)	-4.480*	-.86	-.00
Borderline		2.20 (2.40)	3.98 (2.62)	4.343*	.70	-.08
Antisocial		.33 (1.04)	.06 (.52)	-1.882	-.36	.04

****p* < .001, ***p* < .01, **p* < .05; Note: SCID-II scales are the dimensionally scored SCID-II personality disorders.

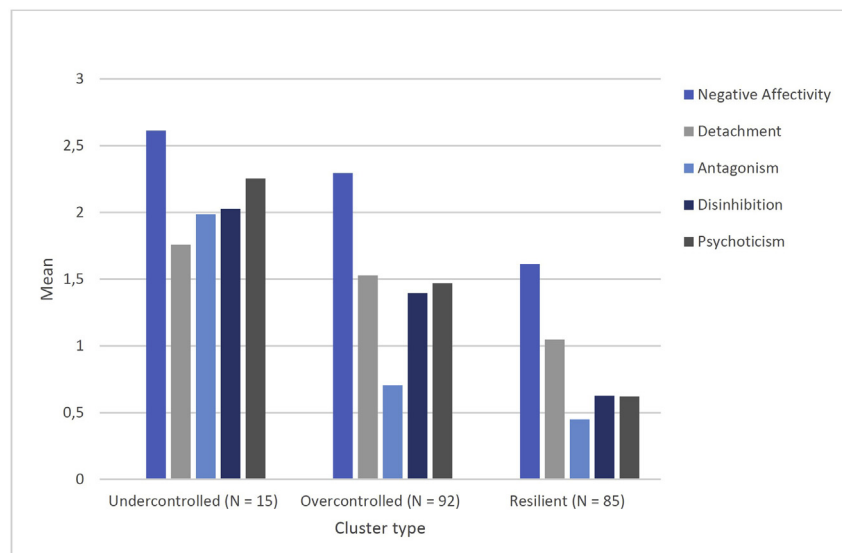


Figure 1. PID-5-BF scores of undercontrolled, overcontrolled and resilient types.

Table 3. Comparisons of the types on personality functioning and symptom severity.

Mean scale scores	Undercontrolled M(SD)	Overcontrolled M(SD)	Resilient M(SD)	F value	Post-hoc comparisons
LPFS-BF 2.0	(n = 15)	(n = 84)	(n = 79)		
Total	3.50 (.30)	3.03 (.38)	2.51 (.52)	47.16	UO*, UR**, OR**
Self	3.77 (.18)	3.48 (.45)	2.84 (.63)	39.18	UR**, OR**
Interpersonal	3.23 (.54)	2.58 (.53)	2.17 (.61)	26.06	UO**, UR**, OR**
SIPP-SF	(n = 15)	(n = 84)	(n = 79)		
Self-Control	1.77 (.56)	2.35 (.56)	2.85 (.63)	27.82	UO*, UR**, OR**
Identity Integration	1.74 (.46)	1.82 (.55)	2.33 (.68)	16.45	UR*, OR**
Responsibility	2.17 (.64)	2.80 (.55)	3.15 (.55)	22.24	UO**, UR**, OR**
Relational Capacities	1.78 (.48)	2.12 (.57)	2.46 (.61)	12.14	UR**, OR*
Social Concordance	2.16 (.64)	2.85 (.53)	2.93 (.59)	24.70	UO**, UR**, OR*
BSI	(n = 15)	(n = 87)	(n = 81)		
Total	2.31 (.58)	2.02 (.65)	1.43 (.60)	24.88	UR**, OR**

Tukey post-hoc comparisons, ** $p < .001$, * $p < .01$; UO = significant difference between undercontrolled and overcontrolled types, UR = significant difference between undercontrolled and resilient types, OR = significant difference between overcontrolled and resilient types; higher LPFS-BF 2.0 scores indicate more impairment; higher SIPP-SF scores indicate more adaptive functioning.

3. Results

3.1. Descriptive statistics

Table 2 with the descriptive statistics, shows the means scores of all measures and reports gender and age effects. Age effects were limited, none of the significant correlations reached a medium effect size. There were three large significant gender effects: males score higher on SIPP-SF Identity Integration and Narcissistic PD than females and females scored higher on BSI total score. Furthermore, medium significant gender effects indicated, when females and males were compared to each other, females scored higher on PID-5-BF Negative Affectivity, total and self LPFS-BF 2.0 score, and Borderline PD scale.

3.2. Cluster analysis PID-5-BF maladaptive traits

Agglomeration coefficients (Ward method) were the following for 1–10 clusters: 955.00, 691.70, 589.33, 524.68, 486.59, 448.79, 418.03, 393.52, 317.00, and 351.16. Since the agglomeration coefficients decrease relatively less from three to more clusters than between 1 and 2 clusters and between 2 and 3 clusters, the three-cluster solution provides the best balance between parsimony and fit to three RUO types. A discriminant analysis also confirmed that the k means three-cluster solution yielded well defined clusters (98.4 % correctly classified).

In Figure 1, mean PID-5-BF scores for the three clusters are presented. In accordance to Samuel et al. (2013), we considered a rounded score of two or more as indicating an elevation on the maladaptive trait. The first cluster type was characterized (mean and SD between brackets) by high

scores on Negative Affectivity (2.61, 0.40), Antagonism (1.99, 0.47), Disinhibition (2.03, .49) and Psychoticism (2.25, 0.46) and no elevation on Detachment (1.76, 0.53). The second type showed a high Negative Affectivity score (2.29, 0.52) and no elevated scores on the other trait domains: Detachment (1.53, 0.52), Antagonism (0.71, 0.42), Disinhibition (1.40, 0.61) and Psychoticism (1.47, 0.51). Finally, the third type showed no elevations: Negative Affectivity (1.61, 0.50), Detachment (1.05, 0.53), Antagonism (0.45, 0.41), Disinhibition (0.63, 0.43) and Psychoticism (0.62, 0.44). Due to resemblance of high scores to the types of Claes et al. (2006), we labeled our first, second and third cluster respectively the Undercontrolled, Overcontrolled and Resilient cluster. There were no statistically significant gender differences across the clusters ($\chi^2_{(2)} = 2.721$, $p = .257$), neither age differences ($F_{(2,189)} = 1.371$, $p = .256$).

3.3. Differences between clusters on external validity measures

Table 3 shows the mean LPFS-BF 2.0 total, self and interpersonal scores, mean scores on the SIPP-SF scales, and total BSI score (higher score indicating more distress) across the three clusters. The MANOVA comparing the three clusters on these variables measuring functioning (LPFS-BF 2.0 and SIPP-SF scales) showed an overall significant effect (Wilks Lambda = .511, $F_{(336,16)} = 8.384$, $p < .001$, $\eta^2 = .29$). Post-hoc comparisons showed differences on all scales (see Table 2). Results of an ANOVA ($F_{(2,180)} = 24.879$, $p \leq .001$, $\eta^2 = .31$) with post-hoc comparisons showed that symptom severity as assessed by the BSI was significantly lower in the resilient group, than the under- and

Table 4. Comparisons of the types on SCID-II dimensional scales.

Mean PD scores	Undercontrolled (N = 12) M(SD)	Overcontrolled (N = 81) M(SD)	Resilient (N = 75) M(SD)	F value	Post-hoc comparisons
Avoidant	1.58 (2.15)	2.17 (2.00)	1.99 (2.18)	.47	
Dependent	.67 (1.61)	.58 (1.17)	.44 (0.92)	.42	
Obsessive-compulsive	.92 (1.62)	1.31 (1.77)	1.96 (1.66)	3.78	OR*
Paranoid	.50 (1.45)	.31 (.93)	.09 (.41)	2.19	
Schizotypal	.17 (.39)	.04 (.25)	.05 (.36)	.89	
Schizoid	.00 (.00)	.02 (.22)	.03 (.23)	.08	
Histrionic	.67 (1.37)	.09 (.32)	.28 (.92)	3.67	UO*
Narcissistic	2.33 (2.67)	.51 (1.33)	.68 (1.35)	8.14	UO***, UR**
Borderline	5.25 (2.77)	4.27 (2.63)	2.04 (2.09)	20.71	UR*, OR*
Antisocial	.00 (.00)	.16 (.75)	.19 (.75)	.32	

Tukey post-hoc comparisons, *** $p < .001$, ** $p < .01$, * $p < .05$; UO = significant difference between undercontrolled and overcontrolled types, UR = significant difference between undercontrolled and resilient types, OR = significant difference between overcontrolled and resilient types.

overcontrolled groups, but did not differentiate between under- and overcontrolled types.

A MANOVA comparing the profiles on the SCID-II dimensional scales, revealed overall significant differences (Wilks Lambda = .613, $F_{(312,20)} = 4.317$, $p < .001$, $\eta^2 = .22$). Post-hoc comparisons showed differences on the obsessive-compulsive, histrionic, narcissistic and borderline PD scales (see Table 4).

Fisher's exact tests showed differences in percentages across clusters for the SCID-II and SCID-I diagnoses. In terms of SCID-II diagnoses ($N = 168$; 12 undercontrolled, 81 overcontrolled, and 75 resilient types), narcissistic PD ($p = .002$) was most prevalent in undercontrollers (33.3%), and less prevalent in overcontrollers (3.7%) and resilients (2.7%). Borderline PD ($p \leq .001$) was less prevalent in resilients (17.3%), more prevalent in overcontrollers (50.6%), and most prevalent in undercontrollers (66.7%). Concerning SCID-I diagnoses ($N = 170$; 13 undercontrolled, 82 overcontrolled, and 75 resilient types), prevalences were different for mood disorder ($p = .008$) with the highest percentage in overcontrollers (64.6%) and lower percentages in undercontrollers (30.8%) and resilients (44.0%).

4. Discussion

In this study we explored if resilient, overcontrolled and undercontrolled personality types could be corroborated in a sample of personality disordered adults based upon DSM-5 maladaptive personality traits. Furthermore, we examined if these prototypes could be differentiated in terms of personality functioning, and internalizing and externalizing pathology.

Cluster analysis resulted in a 3-cluster solution being the best representation of the data and could be interpreted as resilient, undercontrolled and overcontrolled types, in line with previous research (Claes et al., 2006). The resilient type was characterized by low scores on all pathological trait domains. The undercontrolled type was characterized by high scores on all pathological trait domains, with the exception of Detachment. The overcontrolled type was characterized by a high score on Negative Affectivity. In terms of presence of maladaptive trait domains, the undercontrolled type appears to be the most dysregulated and the resilient type the most adaptive type, when comparing RUO types. This is corroborated by the differences of the RUO types in terms of personality functioning. Based on level of personality functioning as measured by the LPFS-BF 2.0, there were significant differences between all groups, with the resilient type showing less impairment compared to the other types on all scales, and the undercontrolled type reporting the most severe impairment of personality functioning, with higher total and interpersonal impairment than the overcontrolled type. The SIPP-SF scales showed a similar pattern with regard to personality functioning in the groups. The resilient types showed the most adaptive scores on all domains of personality functioning compared to the other two types. The undercontrolled type obtained similar scores on Identity integration and Relational capacities compared to the overcontrolled type, yet lower scores on Self Control, Responsibility and Social Concordance. In analogy to the findings of Bastiaens et al. (2020) in non-clinical individuals, we can conclude that the clusters types (based on criterion B traits) are informative of criterion A severity in clinical samples as well. Also, concerning clinical disorders resilients showed less symptom severity compared to under- and overcontrollers based on the BSI total score. Furthermore, analyses based on SCID-I and SCID-II diagnoses could also further validate the clinical relevance of the types in terms of internalizing versus externalizing pathology, in accordance with Asendorpf et al. (2001). The resilient clearly showed lower prevalence of internalizing and externalizing pathology compared to the other two types. The overcontrolled type was characterized by more internalizing pathology, demonstrated by the highest prevalence of mood disorders in this group. To a certain extent, the undercontrolled type also exhibited more externalizing pathology, demonstrated by the higher prevalence of narcissistic and borderline PDs. At the same time, these findings should not be

overinterpreted. Although about 34% of participants had an anxiety disorder, a typical internalizing disorder, this did not result in prevalence differences in anxiety across the RUO types. Also, the association of the undercontrolled type with externalizing pathology should be further explored in samples with higher prevalences of typical externalizing pathology, like for instance substance use disorders (prevalence in the current sample was limited to 10%). Also, although being highest in undercontrollers, borderline pathology still reached a high prevalence and dimensional score in overcontrollers compared to resilients. This is in line with previous research, borderline PD is a heterogenous disorder and is often characterized by less control over impulses and emotions, therefore being the highest in undercontrollers, yet can also be marked by emotion dysregulation, high emotional distress and severe personality dysfunctioning without acting out behavior (Hutsebaut et al., 2017; Lieb et al., 2004; Weekers et al., 2019), which is congruent with high scores in overcontrollers (with high scores on Negative affectivity and worse personality functioning than resilients). For other PDs or clinical disorders no distinction between personality types were found. This could be partly explained by the low prevalence of other disorders in our sample. On the other hand, PD-NOS was the most common diagnosis in the current study, but due to the unspecific nature of this diagnosis it is not surprising that a distinction in types for the PD-NOS diagnosis was not found.

In studies using FFM traits instead of AMPD maladaptive traits, an additional differentiation between undercontrollers and overcontrollers was the high score on Conscientiousness of the latter and the low score on Conscientiousness of the former. Although there is no counterpart in terms of PID domains for maladaptively high Conscientiousness, we have findings supportive of this assumption. Undercontrollers did score high on Disinhibition, whereas overcontrollers did not. Also, overcontrollers compared to resilients scored higher on the obsessive-compulsive dimensional PD scale, indicating they have some form of restrictedness which is rather in the maladaptive direction, since at the same time they do not reach the same level of Responsibility as resilients, as measured by the respective SIPP-SF scale. Resilients score higher on this scale compared to the other two types, and overcontrollers score higher than undercontrollers. Responsibility is known to have a high correlation with Conscientiousness (e.g. $r = .60$ in Bastiaansen et al., 2013).

The identification of these subtypes thus may have important clinical implications. PD patients with a resilient profile may benefit from less intensive treatment, whereas patients with an undercontrolled profile may need more intensive treatment, compared to overcontrollers. This is in line with the stepped-care model, assuming that some patients, with less severe pathology, can benefit from minimal interventions (Paris, 2013). Moreover, these subtypes may inform focus of treatment planning: treatment in undercontrollers may initially be targeted at improving emotional dysregulation and self-control, while overcontrollers may benefit from a treatment focus on self-image, self-directedness (high internal standards) and relational capacities (see also Bach et al., 2015).

An important strength of our study is the large clinical sample from a mental health care center specialized in the assessment and treatment of PDs. However, some limitations should be kept in mind. First the range of PDs was restricted, our sample consisted mostly of patients with a borderline PD or a PD-NOS. There were virtually no Cluster A PDs present and very little patients (<5%) with an antisocial, histrionic, or dependent PD. Also, the undercontrolled cluster consisted of few patients compared to the resilient and overcontrolled cluster. Second, we used brief forms for assessing personality traits. Using the full version of the PID-5 might give a more detailed insight into the differences between RUO subtypes. Although, to mitigate this concern, we were able to distinguish between subtypes based on this brief instrument and other authors have used similar short instruments (e.g. Alessandri et al., 2014; Asendorpf et al., 2001; Claes et al., 2006). Finally, to further corroborate the differentiation between over- and undercontrollers, future research could incorporate a measure for maladaptive Conscientiousness. The International

Classification of Diseases (ICD-11; World Health Organisation, 2019) that will come into effect in 2022 does specify a trait domain for PDs that can be considered to encompass some form of maladaptive Conscientiousness, namely Anankastia (i.e., Compulsivity), besides trait domains overlapping with the AMPD model (i.e., Negative Affectivity, Detachment, Disinhibition, Dissociality). On the other hand, Psychoticism, which was elevated in undercontrollers and not in other types in the current study, is unique to the AMPD approach. Therefore, further research should ideally encompass both Anankastia and Psychoticism. This adheres to a plea recently made by researchers (Bach et al., 2020) in favour of harmonising DSM-5 and ICD-11 trait domains in a future DSM 5.1 nosology and a measure proposed for this reason using a 36 reduced item pool from the original PID-5 questionnaire (Krueger et al., 2012).

Declarations

Author contribution statement

Gina Rossi: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Laura C. Weekers: Conceived and designed the experiments; Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Joost Hutsebaut: Conceived and designed the experiments; Wrote the paper.

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The authors declare no conflict of interest.

Additional information

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