ROCZNIKI PSYCHOLOGICZNE/ANNALS OF PSYCHOLOGY
2017, XX, 2, 451–472
DOI: http://dx.doi.org/10.18290/rpsych.2017.20.2-6en

WŁODZIMIERZ STRUS
TOMASZ ROWIŃSKI
JAN CIECIUCH
MONIKA KOWALSKA-DĄBROWSKA
IWONA CZUMA
CEZARY ŻECHOWSKI
Cardinal Stefan Wyszyński University in Warsaw
Institute of Psychology

THE PATHOLOGICAL BIG FIVE: AN ATTEMPT TO BUILD A BRIDGE BETWEEN THE PSYCHIATRIC CLASSIFICATION OF PERSONALITY DISORDERS AND THE TRAIT MODEL OF NORMAL PERSONALITY

The fifth edition of the DSM diagnostic manual has presented a hybrid system of personality disorder diagnosis, which integrates categorical and dimensional approach to diagnosis, building a kind of bridge between psychiatric classifications of disorders and psychological research on the structure of normal personality. The key element of this system is a new dimensional model of pathological personality traits. This article presents the results of the empirical verification of this model in Poland. The participants in the study were 754 individuals from the nonclinical population, aged 16–86 (M = 36.45, SD = 16.65), including 52% women. Normal personality traits were measured by means of the Revised NEO Personality Inventory (NEO-PI-R), and pathological personality traits – by means of the Personality Inventory for DSM-5 (PID-5); the risk of personality disorders was determined on the basis of SCID-II (Structured Clinical Interview for DSM-IV Axis II) questionnaire scores. The obtained results proved to be consistent with the expectations: (1) on the level of the five broad traits, the pathological DSM-5 model strongly corresponds to the Five-Factor Model of normal personality; (2) the DSM-5 model predicts the categories of disorders better than the Five-Factor Model does.

Keywords: personality disorders; DSM-5 model; personality traits; PID-5; Five-Factor Model.

Address for correspondence: WŁODZIMIERZ STRUS – Cardinal Stefan Wyszyński University, Institute of Psychology, ul. Wóycickiego 1/3 bud. 14, 01–938 Warszawa; e-mail: w.strus@uksw.edu.pl

The third author's work was financed by Grant 2014/14/M/HS6/00919 from the National Science Center (NCN), Poland.

INTRODUCTION

In the diagnosis of mental disorders, including personality disorders, the categorical approach is the dominant one. In this approach, mental disorders are defined as separate entitie – categories, and diagnosis is made based on a specific number of criteria according to the current classifications of diseases and disorders. However, many researchers and clinicians stress a number of limitations of this approach (cf. Cierpiałkowska, 2004; Grabski & Gierowski, 2012; Trull & Durrett, 2005; Widiger, 2012). An alternative is the dimensional approach, where diagnosis consists in assessing the pathological intensity of specific dimensions of personality cataloged in a given model (cf. Widiger, 2012; Widiger, Simonsen, Sirovatka, & Regier, 2006). The dominant model in this approach is the so-called Five-Factor Model of personality (FFM; Costa & McCrae, 1992; Widiger & Costa, 2013), also called the Big Five model. It turned out that the model offers certain possibilities of differentiating, describing, and diagnosing personality disorders (Widiger, 2012; Widiger & Costa, 2013), but its usefulness (as well as the usefulness of dimensional models as such) in this respect is questioned and seems to be limited (De Fruyt, De Clercq, van de Wiele, & van Heeringen, 2006; Krueger et al., 2011; Zawadzki, 2009).

In this context, an interesting proposal is the hybrid, categorical-dimensional system of diagnosis published in the fifth edition of the DSM diagnostic manual (*Diagnostic and statistical manual of mental disorders – 5th edition*; APA, 2013). This system not only integrates categorical and dimensional approaches to the diagnosis of personality disorders (cf. Livesley, 2007) but also constitutes a kind of bridge between the tradition of psychiatric classifications of personality disorders and the psychological tradition of research on the structure of human personality. The key element of this system is the new, dimensional model of dysfunctional personality traits, which corresponds to FFM and is therefore sometimes treated as a model of the pathological Big Five. The present article presents both the hybrid system of diagnosis proposed in DSM-5 and the model of pathological traits together with the first attempt at its empirical verification in the Polish conditions.

PROBLEMS OF CATEGORICAL DIAGNOSIS OF PERSONALITY DISORDERS

Categorical diagnosis of personality disorders is based on classifications of mental disorders and their criteria distinguishing personality disorders from other clinical entities and make it possible to distinguish a given type of disorder on the basis of its characteristic features. The currently used classifications are ICD-10 (*International Classification of Diseases*, 10th Revision), developed by the World Health Organization (WHO, 1992), and DSM-5 (*Diagnostic and statistical manual of mental disorders*, 5th edition), developed by the American Psychiatric Association (APA, 2013). The descriptions of disorders that these classifications contain have a categorical nature, which means the diagnosis based on them consists in assessing the occurrence (or nonoccurrence) of a given category (or type) of personality disorder based on the occurrence (or nonoccurrence) of particular symptoms in the patient. For a given category of disorder to be diagnosed, a minimum number of symptoms from the set defining that disorder have to be found. This kind of approach assumes that personality disorders are distinct clinical entities, qualitatively different from one another and from normal per-sonality (with no disorders).

The categorical approach dominates in clinical diagnosis, and – despite its many advantages – it has been intensively criticized for a fairly long time (cf. Trull & Durrett, 2005; Widiger, 2012). The main limitations of this approach and of the functioning classifications based on it, mentioned in the literature, include: (1) the excessive co-occurrence of different personality disorder entities in the same individuals (the non-disjunctive character of the criteria); (2) the inadequate scope of classification and the related frequent diagnosis of so-called Personality Disorders Not Otherwise Specified (PDNOS); (3) heterogeneity within the same diagnostic category-namely, considerable differences in the clinical picture and in the functioning between individuals diagnosed with the same personality disorder; (4) arbitrary and unstable diagnostic thresholds-borders between normal and disordered personality; (5) insufficient scientific foundations, validity unconfirmed in empirical studies, and a lack of associations with empirically verified psychological models of personality (cf. Cierpiałkowska, 2004; Grabski & Gierowski, 2012; Trull & Durrett, 2005; Widiger et al., 2006).

DIMENSIONAL APPROACH: THE FIVE-FACTOR MODEL OF PERSONALITY AND ITS RELATIONS WITH PERSONALITY DISORDERS

The alternative to the categorical approach is the dimensional approach, often regarded as better in diagnosingpersonality disorders (Clark, 2007; Krueger et al., 2011; Trull & Durrett, 2005; Widiger, 2012). Its essence lies in the assumption that personality disorders stem from the pathological intensity of specific personality dimensions.

The numerous dimensional models (cf. Widiger et al., 2006) include: (1) models that comprise exclusively dysfunctional dimensions of personality – their high intensity indicates a disorder (e.g., the DAPP model; Livesley, 2007); (2) models that are meant to reflect personality comprehensively, presupposing a continuum (quantitative by nature) between normal and disordered personality, and which attribute personality disorders to configurations of extremely high or extremely low levels of "normal" dimensions of personality (e.g., FFM by Costa & McCrae, 1992); (3) models that comprise both adaptive and maladaptive personality traits (e.g., the SNAP model; Clark, 2007). In view of its integrative potential and an impressive background of empirical research (cf. Costa & McCrae, 1992; Widiger & Costa, 2013), the model that enjoys special interest among researchers investigating personality disorders is the FFM (Widiger, 2012; Widiger & Costa, 2013).

The FFM is the dominant taxonomy of the basic personality dimensions in psychology. The assumption behind this model is that the structure of human personality is organized into five basic dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness, as well as their 30 facets (Costa & McCrae, 1992). According to numerous scholars, the FFM exhibits and highlights the main advantages of the dimensional approach to personality disorders, making it possible, for instance: to individualize the profile of disorder; to describe various disorders coherently and specify the relations between them within a nonclinical and scientific model of personality structure, primary to disorders; to perform a comprehensive assessment of both dysfunctional and adaptive facets of personality (Widiger & Costa, 2013).

Many studies confirm that FFM can indeed be used to describe and distinguish categories of personality disorders (Miller, 2012; Samuel & Widiger, 2008; Widiger & Costa, 2013). The links between disorders and FFM factors recur fairly regularly, and personality disorders can be described both in terms of the poles of the five FFM factors (more generally; cf. Saulsman & Page, 2004;

Samuel & Widiger, 2008) as well as in terms of 30 facets (in greater detail; Miller, 2012; Samuel & Widiger, 2008; Widiger, 2012; Widiger & Costa, 2013).

On the other hand, the description of disorders in terms of the FFM involves significant limitations – it often proved not to be precise enough to exhaustively capture the specificity of particular disorders and differentiate them. The FFM factors (domains) and facets explained a rather low percentage of variance in particular disorder entities; additionally, it turned out that the stability (replicability) of the characteristics of disorders in terms of FFM profiles was not particularly high (Bagby, Costa, Widiger, Ryder, & Marshall, 2005; De Fruyt et al., 2006; Miller, 2012; Samuel & Widiger, 2008; Widiger, 2012; Zawadzki, 2009).

Analyzing the critical arguments, it is worth noting that the validity of dimensional models (including the FFM) in the diagnosis of personality disorders is frequently tested in the context of categorical classifications (usually DSM-IV), which themselves comprise non-disjunctive categories and exhibit the weaknesses mentioned above. In order to establish which configurations of dimensions (in a dimensional model) should be regarded as indicative of a disorder (described in the categorical classification), a kind of "key" is needed, which, unfortunately, is usually generated empirically for specific categories of disorders (cf. Miller, 2012).

On the other hand, without this "point of reference" it would be problematic to establish which configurations of dimensions indicate a disorder, particularly based on those dimensional models that refer primarily to "healthy" personality. Moreover, a key problem for them (and thus also for the FFM) is the arbitrariness of diagnostic thresholds – the establishment of limits for specific dimensions that, when exceeded, would indicate pathology (cf. Miller, 2012). This results in problems with the application of the FFM in clinical practice (cf. Trull & Durrett, 2005; Widiger, 2012).

To sum up, the FFM has not fulfilled the hopes for an integration of research on normal and disordered personality (cf. Zawadzki, 2009). At the same time, the possibilities and limitation of the FFM in describing and differentiating personality disorders became the foundation of the work of the team preparing the fifth edition of the DSM classification (*DSM-5 Personality and Personality Disorders Work Group*; APA, 2013; cf. Krueger, Derringer, Markon, Watson, & Skodol, 2012; Kreuger et al., 2011). Undertaking to overcome the problems of earlier, categorical classifications of personality disorders, this team developed a new model of pathological personality dimensions as well as proposed relatively unambiguous and justified criteria of transition from this dimensional model to categorical diagnosis.

THE MODEL OF PATHOLOGICAL PERSONALITY TRAITS AS AN ELEMENT OF THE HYBRID SYSTEM OF PERSONALITY DISORDER DIAGNOSIS PROPOSED IN DSM-5

In the latest, fifth edition of the DSM (APA, 2013, Section II) both the diagnostic criteria and the number of personality disorders (the categorical model) from the previous version of the classification (DSM-IV-TR, APA, 2000) have been retained. However, in Section III of DSM-5, an alternative, hybrid system of diagnosis has been proposed, marked as currently being verified and tested in scientific research and clinical practice. An element of this system is a new model of pathological personality (APA, 2013; Kreuger et al., 2011, 2012).

The key diagnostic criteria for personality disorder in the hybrid DSM-5 model are Criteria A and B. Criterion A concerns impairments in the functioning of personality in two spheres: (1) the intrapsychic sphere of the self, constituted by *identity* and *self-direction*, and (2) the interpersonal sphere, comprising *empathy* and *intimacy*.

Criterion B is based precisely on the new model of pathological personality traits and concerns the occurrence of one or more pathological trait facets, grouped into five general factors referred to as trait domains. These five general domains are: Negative Affectivity, Detachment, Psychoticism, Antagonism, and Disinhibition. The authors of this model visibly draw on the FFM model describing normal personality, with the names and – in most cases – the poles of the DSM-5 model adjusted to the pathological nature of the traits distinguished: Negative Affectivity is the counterpart of Neuroticism, Detachment – of low Extraversion, Antagonism – of low Agreeableness, Disinhibition – of low Conscientiousness, and Psychoticism – of Openness to Experience (cf. APA, 2013; Widiger, 2012). Studies generally confirm these associations (e.g., De Fruyt et al., 2013; Few et al., 2013; Griffin & Samuel, 2014; Thomas et al., 2013; Quilty, Ayearst, Chmielewski, Pollock, & Bagby, 2013), the one between Psychoticism and Openness usually being the weakest.

Whereas the five pathological trait domains correspond to the five FFM factors, the facets included in these domains are an entirely new proposal, and together with the five domains they constitute a new comprehensive hierarchical model of pathological personality traits (APA, 2013; Kreuger et al., 2011). In the DSM-5 model, 25 trait facets have been distinguished; each of the pathological domains has from three to nine facets; four facets belong to two domains (APA, 2013). The names of all facets, their assignment to the five pathological domains,

and the five basic FFM personality dimensions corresponding to them are presented in Table 1.

Table 1
Trait-Facets Together With Their Assignment to Trait Domains in the DSM-5 Model and the Corresponding Five Basic Dimensions of Personality in FFM

FFM dimensions	Pathological domains in DSM-5	Pathological facets in DSM-5
Neuroticism	Negative Affectivity	1. Emotional Lability (Emo) 2. Anxiousness (Anx) 3. Separation Insecurity (Sep) 4. Submissiveness (Sub) 5. Perseveration (Per) 6. *Hostility* (Hos) 7. *Depressivity* (Dep) 8. *Suspiciousness* (Sus) 9. (-) *Restricted Affectivity* (Res)
Extraversion	Detachment	1. Withdrawal (Wit) 2. Intimacy Avoidance (Int) 3. Anhedonia (Anh) 4. *Depressivity* (Dep) 5. *Restricted Affectivity* (Res) 6. *Suspiciousness* (Sus)
Openness to Experience	Psychoticism	1. Unusual Beliefs and Experiences (Unu) 2. Eccentricity (Ecc) 3. Cognitive and Perceptual Dysregulation (Cog)
Agreeableness	Antagonism	1. Manipulativeness (Man) 2. Deceitfulness (Dec) 3. Grandiosity (Gra) 4. Attention Seeking (Att) 5. Callousness (Cal) 6. *Hostility* (Hos)
Conscientiousness	Disinhibition	1. Irresponsibility (Irr) 2. Impulsivity (Imp) 3. Distractibility (Dis) 4. Risk Taking (Ris) 5. (-) Rigid Perfectionism (Rig)

Note. The trait facets that are assigned to two trait domains have been italicized; (-) indicates that a given facet is part of a given domain with the reverse sign; the abbreviations for the names of trait facets are used in Table 6.

Each trait in this model is a dimension whose intensity is measured by means of a questionnaire constructed especially for this purpose – *Personality Inventory for DSM-5* (Kreuger et al., 2012). At the same time, the hybrid character of the DSM-5 system of diagnosis means that the system has elements of the categorical approach, too. These elements are present in the final stage of clinical diagnosis, in which – based on the high level of specific pathological traits – the category of a particular personality disorder is identified (after Criterion A has been

met). DSM-5 does not specify the threshold of a high intensity of traits, but the mean value above 2 (on a scale from 0 to 3) is adopted in the literature for the score on PID-5 scales (Samuel, Hopwood, Krueger, Thomas, & Ruggero, 2013; cf. Morey & Skodol, 2013).

Table 2
Pathological Traits as Indicators of Categories of Personality Disorders According to the Proposal Presented in Section III of *DSM-5*

Pathological trait domains	Pathological trait facets	ATS (6)	AVD (3)	BDL (4)*	NCS (2)	OCP (3)	SZT (4)
Negative Affectivity	Emotional Lability			X			
	Anxiousness		X	X			
	Separation Insecurity			X			
	Submissiveness						
	Perseveration					X	
	Hostility	*X*		*X*			
	Depressivity			*X*			
	Suspiciousness						*X*
	Restricted Affectivity (-)					*X*	*X*
Detachment	Withdrawal		X				X
	Intimacy Avoidance		X			X	
	Anhedonia		X				
	Depressivity			*X*			
	Restricted Affectivity					*X*	*X*
	Suspiciousness						*X*
Psychoticism	Unusual Beliefs and Experiences						X
	Eccentricity						X
	Cognitive and Perceptual Dysregulation						X
Antagonism	Manipulativeness	X					
	Deceitfulness	X					
	Grandiosity				X		
	Attention Seeking				X		
	Callousness	X					
	Hostility	*X*		*X*			
Disinhibition	Irresponsibility	X					
	Impulsivity	X		X			
	Distractibility						
	Risk Taking	X		X			
	Rigid Perfectionism (-)					X	

Note. ATS – antisocial personality disorder, AVD – avoidant personality disorder, BDL – borderline personality disorder, NCS – narcissistic personality disorder, OCP – obsessive-compulsive personality disorder, SZT – schizotypal personality disorder; the numbers in brackets indicate the minimum number of trait facets whose level has to be high for a given category of disorder to be diagnosed. X marks the facets indicating a given category of disorder; X marks the facets that are required for a given type of disorder to be diagnosed; the facets that are assigned to two domains are italicized – they occur twice in the table as diagnostic of certain categories of disorders, which is indicated by shading. * out of three required facets, only one is necessary for diagnosis (-) means that a given facet is part of a given domain with the reverse sign.

In Section III of DSM-5, six categories of personality disorders have been described: antisocial, avoidant, borderline, narcissistic, obsessive-compulsive, and schizotypal. Following criticism, their number was reduced from ten that were distinguished in DSM-IV-TR, with paranoid, schizoid, histrionic, and dependent personality disorders eliminated.

The configurations of pathological trait facets for each of the six categories of personality disorders are presented in Table 2. As we can see, the sets of pathological traits and the criteria for the diagnosis of a given disorder category on their basis (specifying the necessary and sufficient traits) differ across disorders (APA, 2013). It is worth stressing that, unlike empirical attempts to link personality disorders with profiles of FFM traits (cf. Miller, 2012; Samuel & Widiger, 2008), the configurations of pathological traits diagnostic of specific categories of disorders have been developed by the authors of DSM-5 in a comprehensive and theoretical way. These decisions, however, require empirical verification.

RESEARCH PROBLEM

The presented research was an attempt to answer the question of whether the two main aims of the model of dysfunctional personality traits presented in Section III of DSM-5 have been achieved. The first of these aims was to create a model of pathological traits corresponding to the FFM – to an empirically verified model of normal personality, dominant in psychology. The other aim was to ensure more effective diagnosis of personality disorders compared to FFM-based diagnosis (cf. Miller, 2012). Based on the assumptions and studies discussed above, we formulated two hypotheses:

(1) The factors generated from pathological trait facets (distinguished in DSM-5) are associated with the five factors of personality (distinguished in the FFM) in a way predicted by theory, in accordance with Table 1.

(2) The pathological trait facets distinguished in DSM-5 have better predictive power for the categories of personality disorders than the trait facets distinguished in the FFM.

The above hypotheses concern the DSM-5 model as a bridge between normal personality (FFM) and disordered personality (DSM categories). In the case of the first hypothesis, the criterion of verification is relatively unambiguous – the association of pathological traits with normal ones. In the case of the second hypothesis, a precise criterion is lacking, since the DSM-5 model came into being as a proposed modification of the meaning and diagnosis of disorders.

Nevertheless, it is largely based on DSM-IV-TR, which is why the criterion we adopted was not only the six categories of disorders classified in Section III of DSM-5, but all the ten categories presented in DSM-IV-TR and measured with the SCID-II (Structured Clinical Interview for DSM-IV Axis II Disorders). It should be remembered, however, that the obtained results are burdened with the imperfection of the adopted criterion, though it is a criterion frequently used in the literature (e.g., Bagby et al., 2006; Few et al., 2013; Hopwood, Thomas, Wright, Markon, & Kreuger, 2012).

METHOD

Participants and procedure

The participants in the study were 754 individuals aged 16 to 86 (M = 36.45, SD = 16.65, 52.1% women). All of them completed PID-5 and NEO-PI-R (NEO Personality Inventory – Revised), and a subgroup of 516 participants (aged M = 36.06, SD = 16.00, 54.6% women) completed the SCID-II questionnaire as well. The study was conducted by assistants, recruited from among psychology students. Each student invited from 6 to 10 people from among his or her friends and acquaintances to take part in the study. In accordance with the recommendations of the Committee for Ethics and Bioethics of Cardinal Stefan Wyszyński University, which approved the research project, all the participants were informed about the purpose of the study and signed informed consent for participation.

The study was conducted on a nonclinical sample, which means the results should be treated with caution. On the other hand, the dimensional approach presupposes the existence of specific traits that are found – with different degrees of intensity – in every person; a disorder is marked by a high intensity of these traits. For this reason, and probably also due to the greater availability of the participants, studies on personality disorders following the dimensional approach are quite often conducted on nonclinical samples as well (cf. De Fruyt et al., 2013; Hopwood et al., 2012; Saulsman & Page, 2004). Our study is part of this tradition, too.

Measures

Personality Inventory for DSM-5 (PID-5) To measure pathological personality traits in the DSM-5 model, we used PID-5 inventory (Krueger et al., 2012).

This instrument consists of 220 items, which the participant responds to (the self-report version) or in terms of which he or she is rated by a clinician (the other-rating version) on a 4-point Likert scale: 0 – *very false or often false*; 1 – *sometimes or somewhat false*; 2 – *sometimes or somewhat true*; 3 – *very false or often true*. The items make up 25 subscales (from 4 to 14 items per subscale) measuring pathological trait facets and 5 general scales (from 33 to 74 items per scale) measuring the level of trait domains. The Polish adaptation of the questionnaire, licensed by APA, was prepared by the authors of the present paper. Cronbach's alpha reliability coefficients in the presented study ranged from .67 (Restricted Affectivity) to .93 (Eccentricity), with a mean of .81 for the 25 sub-scales and from .89 (Disinhibition) to .95 (Antagonism) with a mean of .93 for the five scales.

NEO-PI-R Personality Inventory (Costa & McCrae, 1992)**.** To measure the traits distinguished in the FFM, we administered the Polish adaptation of the NEO-PI-R inventory (Siuta, 2006). The instrument consists of 30 subscales measuring FFM facets and five general scales measuring the five basic dimensions of personality. In total, NEO-PI-R is composed of 240 items (8 per subscale and 48 per scale), which participants respond to on a 5-point Likert scale: from 0 – *strongly disagree* to 4 – *strongly agree*. Cronbach's alpha coefficients in the presented study ranged from .45 (A6 Sympathy) to .80 (N6 Vulnerability) with a mean of .70 for the 30 subscales and from .88 (Openness to Experience) to .91 (Neuroticism) with a mean of .90 for the five scales.

SCID-II Personality Questionnaire (First, Gibbon, Spitzer, Williams, & Benjamin, 1997). To measure personality disorders distinguished in the DSM-IV-TR classification, we used the Polish adaptation of the SCID-II questionnaire (Zawadzki, Popiel, & Pragłowska, 2010). This instrument is part of the Structured Clinical Interview for DSM-IV Axis II Disorders, serving the purpose of preliminary selection for subsequent – diagnostic – clinical interview. Due to its psychometric character, the SCID-II is used both in clinical diagnosis and in scientific research to estimate the risk or intensity of symptoms characteristic for specific categories of disorders classified in DSM-IV. It consists of 119 items allowing for the assessment of the symptoms of the following personality disorders: avoidant (7 items), dependent (8), obsessive-compulsive (8), paranoid (7), schizotypal (9), schizoid (7), histrionic (8), narcissistic (17), borderline (15), and antisocial (15). Participants answer *Yes* or *No* to each question; the diagnostic answer is coded as "1" and the nondiagnostic one as "0."

The way of testing the hypotheses

We tested the first hypothesis in a correlation analysis and in two factor analyses (in Mplus 7.3) with the ML estimator and CF-EQUAMAX rotation. In the first factor analysis, we entered 25 pathological trait facets measured by means of PID-5, and in the second one, apart from these 25 traits, we also entered the five personality dimensions measured by means of NEO-PI-R (cf. De Fruyt et al., 2013; Griffin & Samuel, 2014; Thomas et al., 2013). In accordance with the hypothesis, we expected that: (1) the 25 pathological trait facets would reveal a five-factor structure in the first analysis; (2) adding the five personality dimensions in the second analysis, measured with the NEO-PI-R, would not change the structure of the 25 pathological traits; (3) the five personality dimensions from NEO-PI-R would be located in the factor structure in accordance with the theoretical assumptions presented in Table 1.

The second hypothesis was tested in a discriminant analysis, in which we compared the power of differentiation (discrimination) of groups with high and low risk of specific personality disorders by the personality trait facets measured by means of NEO-PI-R and by means of PID-5. Being in high- or low-risk groups for personality disorders was determined based on SCID-II scores: individuals with scores above the third quartile were considered high-risk ones, while those with scores below the first quartile were considered low-risk ones. The sizes of both groups are presented in Table 3.

For each disorder, we performed three discriminant analyses, differing in terms of the predictors entered, which constituted a test of three models. The sets of predictors in these models were as follows: (1) the 30 traits from NEO-PI-R, (2) the 25 traits from PID-5, and (3) the 25 traits from PID-5 plus the 30 traits from NEO-PI-R. In each analysis, we used the stepwise method (the algorithm selected significant predictors from the entered pool of variables). We decided to apply the exploratory approach because (1) the key proposed in DSM-5 has the status of a theoretical hypothesis that requires verification, and the first attempts not always confirm it (e.g., Hopwood et al., 2012; Yam & Simms, 2014), and (2) studies show (Miller, 2012; Samuel & Widiger, 2008; Widiger et al., 2012), that it is not totally clear which FFM facets are predictors of specific disorders.

As recommended in the literature (Brown & Wicker, 2000; Radkiewicz, 2010), the interpretation of the results was based on the following indices: (1) Wilks's λ for the whole model, indicating the level of total variance in the results of a given model of predictors not explained by intergroup differences. The lower the value of this index, the higher the proportion of variance explained by

differences between the groups distinguished. (2) Canonical correlation coefficient, indicating the strength of association between the discriminant function of the obtained model of predictors and the variable dividing subjects into groups. (3) The correctness of classification of the participants into groups based on a given model of predictors – expressed as a percentage. (4) The correlation of the predictor with the discriminant function, which is a measure of association that does not take relations with other predictors into account. This index was used in order to identify the most significant trait facets differentiating groups with high and low risk of a particular disorder within the framework of a given model (Radkiewicz, 2010; cf. Brown & Wicker, 2000).

Table 3
The Number of Subjects and the Percentage of the Total Sample in the Lower Quartile (Low Risk of Disorders) and in the Upper Quartile (High Risk of Disorders) of SCID-II Scores

Personality disorder	Low risk Lower quartile		High risk Upper quartile	
	N	% of sample	*N*	% of sample
Antisocial	274	36.3	135	17.9
Avoidant	163	21.6	168	22.3
Borderline	176	23.3	151	20.0
Narcissistic	148	19.6	145	19.2
Obsessive--compulsive	146	19.4	165	21.9
Schizotypal*	118	15.6	145	19.2
Paranoid	138	18.3	158	21.0
Schizoid*	128	17.0	222	29.4
Histrionic	131	17.4	158	21.0
Dependent	222	29.4	164	21.8

Note. * The subjects classified into the low-risk group were those with the sum score of 0 on the relevant SCID-II scale. This was due to the very high number of subjects in the lower quartile, disproportionate to the number of subjects in the upper quartile.

The first three of the above are so-called synthetic (multivariate) indices, enabling the assessment of a given model of predictors in terms of its power of differentiating the two groups and the correctness of classification of people from these groups. We used these indices to compare the FFM and DSM-5 models in terms of the overall power of differentiating groups with different levels of

risk of disorders measured with SCID-II. The fourth index is a specific (bivariate) one, making it possible to assess which of the traits included in the FFM and DSM-5 models are the strongest discriminators of groups with a low and high risk of specific personality disorders.

RESULTS

Pathological DSM-5 traits in the context of the FFM

Table 4 presents correlations of five general factors of personality in FFM and DSM-5 models. The obtained pattern of relations is consistent with the expectations, except in two cases – the correlation of Detachment with Extraversion (negative) is almost as strong as its correlation with Neuroticism, while Psychoticism turned out to be relatively weakly associated with Openness.

Table 4
*Correlations Between Basic FFM Dimensions and DSM-5 Trait Domains (*N = *754)*

	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Negative Affectivity	**.73****	-.17**	.10*	-.13**	-.19**
Detachment	.50**	**-.53****	-.11*	-.17**	-.18**
Psychoticism	.39**	.04	**.31****	-.27**	-.28**
Antagonism	.15**	.22**	.13**	**-.66****	-.22**
Disinhibition	.18**	.22**	.29**	-.31	**-.63****

Note. * $p < .01$, ** $p < .001$ (one-tailed).

In the first exploratory factor analysis, performed in accordance with the above description, which covered 25 trait facets from the DSM-5 model, we obtained the following fit indices for the five-factor model: RMSEA = .082 [.077–.086], CFI = .913, SRMR = .031. Adding the five FFM personality factors resulted in a slight decrease in fit indices (RMSEA = .081 [.078–.085], CFI = .894, SRMR = .034), but the structure of DSM-5 trait facets remained unchanged, and the FFM factors were located as expected, except Openness to Experience. As regards the factor structure of DSM-5 facets, a vast majority of loadings is consistent with expectations. The main exceptions include the loadings of: Perseveration (stronger on Psychoticism than on Negative Affectivity), Suspiciousness (stronger on Antagonism than on Negative Affectivity and Detachment), and the

cross-loadings of Callousness, Grandiosity, and Rigid Perfectionism. The factor loadings of both analyses are presented in Table 5.

Table 5
Factor Loadings in the Five-Factor Solution for the 25 Trait Facets From the DSM-5 Model (Before Slashes) and for the 25 Trait Facets From the DSM-5 Model and the Five Personality Dimensions From the FFM (After Slashes)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Emotional Lability	**.62/.66**				
Anxiousness	**.79/.78**				
Separation Insecurity	**.45/.41**				
Submissiveness	**.38/.28**				
Perseveration	**.34/.34**		.49/.54		
Hostility	**.33/.41**			**.47/.59**	
Depressivity	**.48/.52**	**.37/.34**			
Suspiciousness	**.27/.29**	**.28/.25**		.32/.40	
Restricted Affectivity	**-.24/-.30**	**.71/.66**			
Withdrawal		**.73/.74**			
Intimacy Avoidance		**.43/.44**			
Anhedonia		**.71/.68**			
Unusual Beliefs and Experiences			**.75/.69**		
Eccentricity			**.57/.58**		
Cognitive and Perceptual Dysregu-			**.69/.73**		
Manipulativeness				**.77/.69**	
Deceitfulness				**.78/.76**	
Grandiosity			.29/.35	**.59/.53**	
Attention Seeking				**.63/.51**	
Callousness		.38/.29		**.57/.69**	
Irresponsibility					**.58/.56**
Impulsivity					**.59/.42**
Distractibility					**.55/.55**
Risk taking					**.44/.38**
Rigid Perfectionism	.32/.25		.43/.48		**-.45/-.50**
FFM: Neuroticism	**– /.79**				
FFM: Extraversion		**– /-.76**			
FFM: Openness			**– /.23**		
FFM: Agreeableness				**– /-.80**	
FFM: Conscientiousness					**– /-.85**

Note. Loadings below .35 are not presented, except the loadings on scales consistent with the key and situations when in one analysis a given loading is higher than .35. Loadings consistent with the key are in bold.

The prediction of personality disorders based on the levels of DSM-5 and FFM traits

Table 6 presents the results of the discriminant analysis of the three models for each of the personality disorders distinguished in DSM-IV-TR, of which the first six are also present in Section III of DSM-5.

Table 6
Results of Stepwise Discriminant Analysis for Ten Personality Disorders for Three Models

Personality disorder	Model	Wilks's λ	*n*	R_c	%	Discriminators
Antisocial	FFM	.829	5	.414	68.9	C3 (-.65), A4 (-.62), O1 (.56), A1 (-.55)
	DSM-5	.809	5	.437	69.9	Ecc (.72), Man (.64), Ris (.64), Cog (.57)
	DSM-5+FFM	.791	5	.457	73.3	Ecc (.68), Cal (.62), C3 (-.58), N5 (.47)
Avoidant	FFM	.666	4	.578	79.5	N3 (.81), N1 (.75), E3 (-.63), E1 (-.56)
	DSM-5	.622	3	.615	77.6	Wit (.78), Anh (.77), Anx (.72)
	DSM-5+FFM	.588	6	.642	81.9	Wit (.73), Anh (.72), N3 (.69), Anx (.67)
Borderline	FFM	.568	3	.657	80.7	N3 (.87), N2 (.72), E3 (-.08)
	DSM-5	.537	4	.680	82.3	Dep (.79), Anx (.70), Cog (.66), Hos (.64)
	DSM-5+FFM	.496	5	.710	85.0	N3 (.75), Anx (.65), Cog (.61), Hos (.59)
Narcissistic	FFM	.686	5	.560	75.4	N2 (.68), A1 (-.61), A5 (-.56), E3 (.47)
	DSM-5	.631	5	.622	79.2	Hos (.79), Dec (.76), Att (.70), Ecc (.59)
	DSM-5+FFM	.592	6	.639	80.5	Hos (.75), Att (.67), Ecc (.57), A1 (-.50)
Obsessive-compulsive	FFM	.842	5	.398	65.9	A4 (-.69), E2 (-.41), N4 (.35), A5 (-.30)
	DSM-5	.779	3	.470	70.1	Hos (.79), Rig (.74), Wit (.37)
	DSM-5+FFM	.712	6	.537	77.8	Rig (.66), Hos (.62), A4 (-.47), N2 (.32)
Schizotypal	FFM	.766	4	.484	70.3	N1 (.85), E2 (-.38), A5 (-.03), E5 (.01)
	DSM-5	.610	5	.625	81.0	Cog (.67), Unu (.63), Anx (.63), Wit (.51)
	DSM-5+FFM	.582	6	.646	84.8	Unu (.60), Anx (.59), N1 (.56), Wit (.48)
Paranoid	FFM	.683	7	.563	76.4	N2 (.73), A1 (-.73), A2 (-.54), N3 (.47)
	DSM-5	.622	5	.615	77.7	Hos (.81), Sus (.73), Man (.49), Rig (.45)
	DSM-5+FFM	.576	7	.651	83.1	Hos (.74), Sus (.66), A1 (-.58), Man (.45)
Schizoid	FFM	.815	3	.431	68.0	E2 (-.72), O3 (-.71), N3 (.34)
	DSM-5	.740	5	.510	70.9	Anh (.69), Res (.69), Int (.61), Per (.45)
	DSM-5+FFM	.707	6	.542	76.6	Wit (.64), Int (.56), O3 (-.52), Per (.42)
Histrionic	FFM	.678	8	.567	76.1	E2 (.66), E5 (.65), E3 (.54), E1 (.43)
	DSM-5	.576	5	.651	82.0	Att (.83), Wit (-.41), Gra (.30), Dis (.23)
	DSM-5+FFM	.541	7	.677	82.7	Att (.77), E5 (.49), Wit (-.38), Gra (.28)
Dependent	FFM	.771	7	.479	70.7	N6 (.70), N3 (.60), O4 (-.30), N5 (.19)
	DSM-5	.767	4	.482	73.6	Sep (.78), Anx (.63), Dis (.59), Sub (.54)
	DSM-5+FFM	.714	7	.535	73.6	Sep (.68), N6 (.60), Cog (.51), Sub (.47)

Note. n – the number of significant predictors classified to a given model; R_c – canonical correlation between the discriminant function of a given model for the disorder distinguished in SCID-II; % – percentage of correct classification of the discriminant function; Discriminators – four variables with the highest correlations with a discriminant function; the values of correlations are given in parentheses; explanations for the abbreviations of DSM-5 facets are given in Table 1; abbreviations for FFM facets: N1 – Anxiety, N2 – Angry hostility, N3 – Depression, N4 – Self-consciousness, N5 – Impulsiveness, N6 – Vulnerability, E1 – Warmth, E2 – Gregariousness, E3 – Assertiveness, E5 – Excitement seeking, O1 – Fantasy, O3 – Feelings, O4 – Actions; A1 – Trust; A2 – Straightforwardness, A4 – Compliance, A5 – Modesty, C3 – Dutifulness. All λ values are significant at $p < .01$.

All models differentiating groups with a high and low risk of disorders by means of traits are significant. The value of χ^2 for all 30 models ranged from 52.8 (FFM model for obsessive-compulsive disorder) to 225.9 (DSM-5 + PMO model for borderline personality disorder) (degrees of freedom ranging from 3 to 8). The disorder that is the most strongly differentiated by the FFM and DSM-5 models is borderline personality disorder (the lowest λ, the highest values of R_c, and the highest percentages of correct classification), and the one differentiated the most weakly by the discriminant functions was antisocial personality disorder (the highest λ, the lowest values of R_c, and the lowest percentage of correct classification).

The comparison of the results of analyses performed for the DSM-5 and FFM models leads to the conclusion that the former proved to better differentiate all the ten categories of disorders. In all cases, the DSM-5 model had better discrimination indices, namely: lower values of λ and higher values of R_c, and made it possible to classify individuals more accurately (higher percentage of correct classification) in nine cases (the exception was avoidant personality disorder, where the FFM model had a higher percentage despite weaker λ and R_c), although differences in terms of these indices were sometimes relatively small.

In the case of six personality disorders, DSM-5 differentiates and classifies individuals better than the FFM with the same or lower number of predictors. Only in the case of three disorders (schizotypal, borderline, and schizoid) did DSM-5 models contain a higher number of predictors. Moreover, the comparison of the DSM-5 model with the DSM-5 + PMO model leads to the conclusion that adding FFM facets to the model of DSM-5 facets only slightly improved the effectiveness of the discriminant function.

As regards the assessment of which of the traits included in the FFM and DSM-5 models (the PMO + DSM-5 model) the most strongly differentiated groups of people with a low and high risk of specific personality disorders, the results of the comparison were, again, markedly in favor of the DSM-5 model. The last column of Table 6 contains four best discriminators of each of the ten personality disorders. In 9/10 cases, the most strongly discriminating trait turned out to be a DSM-5 facet. The exception is borderline personality disorder, where the best discriminator was Depressivity (N3) from the FFM, but even in this case the remaining three best predictors were from DSM-5. In 7/10 cases (8/10 if we include borderline personality disorder), also the second best predictor belonged to DSM-5. In 8/10 cases, three of the four strongest discriminators of disorders were DSM-5 facets.

DISCUSSION

The presented research was an attempt at an empirical verification of the model of pathological personality traits presented in Section III of DSM-5 as a bridge between the tradition of psychiatric classifications of disorders and the psychological tradition of research on the structure of normal personality traits.

The obtained results confirm that, at the level of the five broad traits, the DSM-5 pathological personality model strongly corresponds to the FFM normal personality model. This is attested both by the pattern of correlations between these general traits (despite a different catalog of facets in the two models) and by the five-factor structure of DSM-5 model trait facets. These results are consistent with those reported in the literature (De Fruyt et al., 2013; Few et al., 2013; Griffin & Samuel, 2014; Kreuger et al., 2012; Thomas et al., 2012; Quilty et al., 2013).

Of the two problems noted in this context, the first one (correlation between Detachment and Neuroticism) largely stems from the not fully hierarchical structure of the DSM-5 model. A half of the six facets of Detachment are also part of Negative Affectivity, which is assumed to be the pathological counterpart of Neuroticism. A more serious problem is the association between Psychoticism and Openness to Experience, which is usually found in research to be weaker and less unambiguous (De Fruyt et al., 2013; Few et al., 2014; Thomas et al., 2013; Quilty et al., 2013; cf. Widiger, 2012). What sheds interesting light on this relationship is the study by DeYoung, Grazioplene, and Peterson (2012). Starting from the model of FFM subdimensions (aspects), assuming the existence of ten subdimensions of personality whose position in the structure of traits is between the basic five factors and their facets (cf. Strus & Cieciuch, 2014), these authors obtained results suggesting that two subdimensions of Openness to Experience in the FFM – Openness and Intellect may be associated with Psychoticism in opposite ways, i.e. Openness positively and Intellect negatively. This means the relationship between Psychoticism and Openness to Experience may be not so much weaker as more complex (cf. DeYoung, Carey, Krueger, & Ross, 2016).

In the light of the results presented above, the DSM-5 model contains markedly better predictors of personality disorder categories than the FFM. The DSM-5 model proved to be better than the FFM in predicting all ten categories of disorders classified in DSM-IV-TR, and particularly in the cases of schizotypal, obsessive-compulsive, narcissistic, and histrionic personality disorders. Generally, the trait facets distinguished in the FFM and DSM-5 were the most effective in predicting borderline personality disorder as well as histrionic

(DSM-5) and avoidant personality disorders (FFM), and the least effective in predicting antisocial and obsessive-compulsive personality disorders, which is consistent with the results of other studies (Bagby et al., 2005; De Fruyt et al., 2006; Yam & Simms, 2014; cf. Hopewood et al., 2012; Few et al., 2013).

The key validity criterion, both for the new dimensional models of personality disorder and for the FFM in the context of the integration of research on normal and disordered personality, is the categories from the existing classifications of disorders established in clinical practice. Due to the weaknesses of categorical diagnosis itself, this criterion is imperfect, but at the current stage of research it is difficult to replace. The results obtained in the present study correspond to those reported in the literature. A great majority of FFM facets that, in our study, were significant predictors for specific categories of disorders distinguished in DSM-IV-TR exhibited similar significance in earlier studies (cf. Miller, 2012; Samuel & Widiger, 2008; Widiger, 2012; Widiger & Costa, 2013), although in our study their number was smaller due to the use of stepwise discriminant analysis. The main exceptions revealed in our study include the significance of Compliance (A4) and Gregariousness (E2) for obsessive-compulsive personality disorder and of Fantasy (O1) for antisocial personality disorder.

As regards the pathological trait facets from the DSM-5 model, what is particularly interesting is the relation of the configurations of significant predictors revealed in our study for six personality disorders (distinguished in Section III of DSM-5) to the key from the hybrid system of diagnosis proposed in DSM-5 (see Table 2). As in other studies (Hopewood et al., 2012; Morey & Skodol, 2013; Yam & Simms, 2014), the key attributing specific configurations of pathological traits to particular disorders turned out in the light of our results to be valid, though not optimal (although in this assessment, too, our use of stepwise analysis method should be taken into account). In the case of avoidant personality disorder, 3 of the 4 facets present in the DSM-5 key were found in our study to be its significant predictors (these were: Anxiousness – Anx, Withdrawal – Wit, and Anhedonia – Anh). This ratio was 3/6 for schizotypal personality disorder (with the following predictors confirmed: Cognitive and Perceptual Dysregulation – Cog, Unusual Beliefs and Experience – Unu, and Withdrawal – Wit), 1/2 for narcissistic personality disorder (Attention Seeking – Att), 3/7 for borderline personality disorder (Anxiousness – Anx, Depressivity – Dep, and Hostility – Hos), 2/7 for antisocial personality disorder (Manipulativeness – Man, and Risk Taking – Ris), and 1/4 for obsessive-compulsive personality disorder (Rigid Perfectionism – Rig). The remaining significant predictors identified in our study, both for the six categories mentioned above and for the remaining four

present in DSM-IV-TR, appeared in other studies as well (cf. Hopewood et al., 2012; Yam & Simms, 2014).

Even though the research presented in this paper was conducted on a non-clinical sample, which limits the power of the formulated conclusions, they seem to support the thesis that the model of pathological personality traits proposed in DSM-5 (as part of a hybrid system of diagnosis) is a promising attempt to overcome the weaknesses of the categorical approach to personality disorders and to build a bridge between research on normal and disordered personality. However, further studies are necessary to answer the question of whether or not this attempt will be successful and useful to practicing clinicians.

REFERENCES

American Psychiatric Association, APA (2000). *Diagnostic and statistical manual of mental disorders* (4th edition, text revision). Washington, D.C.: APA.

American Psychiatric Association, APA (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, D.C.: APA.

Bagby, R. M., Costa, P. T., Widiger, T, A., Ryder, A. G., & Marshall, M. (2005). DSM-IV personality disorders and the five-factor model of personality: A multi-method examination of domain- and facet-level predictions. *European Journal of Personality, 1*9, 307–324.

Brown, M. T., & Wicker, L. R. (2000). Discriminant analysis. In H. E. A. Tinsley & S. D. Brown (Eds.), *Handbook of applied multivariate statistics and mathematical modeling* (pp. 209–235). San Diego: Academic Press.

Cierpiałkowska, L. (Ed.) (2004). *Psychologia zaburzeń osobowości. Wybrane zagadnienia* [*The psychology of personality disorders. Selected issues*]. Poznań, PL: Adam Mickiewicz University Press.

Clark, L. A. (2007). Assessment and diagnosis of personality disorder: Perennial issues and an emerging reconceptualization. *Annual Review of Psychology, 58*, 227–257.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO–PI–R) and NEO Five-Factor Inventory (NEO–FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

De Fruyt, F., De Clercq, B., de Bolle, M., Wille, B., Markon, K. E., & Krueger, R. F. (2013). General and maladaptive traits in a five-factor framework for DSM-5 in a university student sample. *Assessment, 20*, 295–307.

De Fruyt, F., De Clercq, B. J., Van de Wiele, L., & Van Heeringen, K. (2006). The validity of Cloninger's psychobiological model versus the five-factor model to predict DSM-IV personality disorders in a heterogeneous psychiatric sample: Domain facet and residualized facet descriptions. *Journal of Personality, 74*, 479–510.

DeYoung, C. G., Carey, B. E., Krueger, R. F., & Ross, S. R. (2016). *Ten aspects of the Big Five in the personality inventory for DSM–5. Personality Disorders: Theory, Research, and Treatment.* Advance online publication.

DeYoung C. G., Grazioplene, R. G., & Peterson, J. B. (2012). From madness to genius: The Openness/Intellect trait domain as a paradoxical simplex. *Journal of Research in Personality, 46*, 63–78.

Few, L. R., Miller, J. D., Rothbaum, A. O., Meller, S. Maples, J., Douglas, P. Terry, D. P., Collins, B., & MacKillop, J. (2013). Examination of the Section III DSM-5 diagnostic system for personality disorders in an outpatient clinical sample. *Journal of Abnormal Psychology, 122*(4), 1057–1069.

First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B. W., & Benjamin, L. S. (1997). *Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II).* Washington, DC: American Psychiatric Press.

Grabski, B., & Gierowski, J. K. (2012). Zaburzenia osobowości – różne spojrzenia i próby ich integracji [Personality disorders: Different perspectives and attempts at their integration]. *Psychiatria Polska, 46*(5), 829–844.

Griffin, S. A., & Samuel, D. B. (2014). A closer look at the lower-order structure of the Personality Inventory for DSM-5: Comparison with the five-factor model. *Personality Disorders: Theory, Research, and Treatment.* Advance online publication.

Hopwood, C. J., Thomas, K. M., Markon, K. E., Wright, A. G. C., & Krueger, R. F. (2012). DSM-5 personality traits and DSM-IV personality disorders. *Journal of Abnormal Psychology, 121*, 424–432.

Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychological Medicine, 42*, 1879–1890.

Krueger, R. F., Eaton, N. R., Clark, L. A., Watson, D., Markon, K. E., Derringer, J., … Livesley, W. J. (2011). Deriving an empirical structure of personality pathology for DSM-5. *Journal of Personality Disorders, 25*, 170–191.

Livesley, W. J. (2007). A framework for integrating dimensional and categorical classifications of personality disorder. *Journal of Personality Disorders, 21*(2), 199–224.

Miller, J. D. (2012). Five-factor model personality disorder prototypes: A review of their development, validity, and comparison to alternative approaches. *Journal of Personality, 80*(6), 1565–1591.

Morey, L. C., & Skodol, A. E. (2013). Convergence between DSM-IV-TR and DSM-5 diagnostic models for personality disorder: Evaluation of strategies for establishing diagnostic thresholds. *Journal of Psychiatric Practice, 19*(3), 179–193.

Quilty, L. C., Ayearst, L., Chmielewski, M., Pollock, B. G., & Bagby, R. M. (2013). The psychometric properties of the personality inventory for DSM-5 in an APA DSM-5 field trial sample. *Assessment, 20*, 362–369.

Radkiewicz, P. (2010). Analiza dyskryminacyjna. Podstawowe założenia i zastosowania w badaniach społecznych [Discriminant analysis. Main assumptions and applications in social studies]. *Psychologia Społeczna, 5*(14), 142–161.

Samuel, D. B., Hopwood, C. J., Krueger, R. F., Thomas, K. M., & Ruggero, C. J. (2013). Comparing methods for scoring personality disorder types using maladaptive traits in DSM-5. *Assessment, 20*, 353–361.

Samuel, D. B., & Widiger, T. A. (2008). A meta-analytic review of the relationships between the five-factor model and DSM-IV-TR personality disorders: A facet level analysis. *Clinical Psychology Review, 28*, 1326–1342.

Saulsman, L. M., & Page, A. C. (2004). The five-factor model and personality disorder empirical literature: A meta-analytic review. *Clinical Psychology Review, 23*(8), 1055–1085.

Siuta, J. (2006). *Inwentarz Osobowości NEO-PI-R Paula T. Costy Jr i Roberta R. McCrae. Adaptacja polska. Podręcznik [The NEO-PI-R Personality Inventory by Paul T. Costa Jr. and Robert R. McCrae. Polish adaptation: A manual]*. Warsaw, PL: Psychological Test Laboratory of the Polish Psychological Association.

Strus, W., & Cieciuch, J. (2014). Poza wielką piątkę – przegląd nowych modeli struktury osobowości [Beyond the Big Five: A review of new models of personality structure]. *Polskie Forum Psychologiczne, 19*(1), 17–49.

Thomas, K. M., Yalch, M. M., Krueger, R. F., Wright, A. G., Markon, K. E., & Hopwood, C. J. (2013). The convergent structure of DSM-5 personality trait facets and five-factor model trait domains. *Assessment, 20*, 308–311.

Trull, T. J., & Durrett, C. A. (2005). Categorical and dimensional models of personality disorder. *Annual Review of Clinical Psychology, 1*, 355–380.

WHO International Classification of Diseases, 10th Revision (1992).

Widiger T. A. (Ed.) (2012). *The Oxford handbook of personality disorders*. Oxford, UK: Oxford University Press.

Widiger, T. A., & Costa, P. T. (Ed.) (2013). *Personality disorders and the five-factor model of personality.* Washington, DC: American Psychological Association.

Widiger, T. A., Simonsen, E., Sirovatka, P. J., & Regier, D. A. (Ed.) (2006). *Dimensional models of personality disorders. Refining the research agenda for DSM-V.* Washington, DC: American Psychiatric Association.

Yam, W. H., & Simms, L. J. (2014). Comparing criterion- and trait-based personality disorder diagnoses in DSM-5. *Journal of Abnormal Psychology, 123*(4), 802–808.

Zawadzki, B. (2009). Pięcioczynnikowa Teoria Osobowości a zaburzenia psychiczne [The five--factor theory of personality and personality disorders]. In J. Siuta (Ed.), *Diagnoza osobowości. Inwentarz NEO-PI-R w teorii i praktyce [Personality assessment. The NEO-PI-R inventory in theory and practice]* (pp. 220–237). Warsaw, PL: Psychological Test Laboratory of the Polish Psychological Association.

Zawadzki, Z., Popiel, A., & Pragłowska, E. (2010). *Ustrukturalizowany Wywiad Kliniczny do Badania Zaburzeń Osobowości z Osi II DSM-IV (SCID-II) [Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID II)]*. Warsaw, PL: Psychological Test Laboratory of the Polish Psychological Association.

The preparation of the English version of *Roczniki Psychologiczne* (*Annals of Psychology*) and its publication in electronic databases was financed under contract no. 753/P–DUN/2017 from the resources of the Minister of Science and Higher Education for the popularization of science.