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PHEMENOLOGICAL ASPECTS OF PERSONALITY DISORDERS IN ADULT PSYCHIATRIC PATIENTS

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SUMMARY

Background: *Many empirical studies give evidence of co-occurrence of mental and personality disorders (PDs). On the other hand theoretical models explain the relationship between personality and mental disorders from different perspectives. This research studied the phemenological aspects of PDs in adult psychiatric patients with different mental disorders according to cognitive and psychoanalytic criteria for personality pathology.*

Subjects and methods: *In order to study personality pathology in different diagnostic groups we constructed a self–report Questionnaire of Personality Disorders (VMO-2) on the basis of the DSM-IV-TR classification of PD (APA 2000), Beck's theory of dysfunctional beliefs (Beck et al. 2004) and psychoanalytic theories of personality (Kernberg 1986). The content of items in VMO-2 reflected the phenomenology of PDs and is focused on the basic experience of self and others in specific personality types. The questionnaire consists of 193 items which are divided into 11 clinical scales (Histrionic, Obsessive-compulsive, Avoidant, Dependent, Depressive, Narcissistic, Borderline, Antisocial, Paranoid, Schizoid and Schizotypal PD scale) and a validity (Lie) scale. The sample of 642 adult patients with different mental disorders and 477 healthy controls of both genders served as subjects in the study.*

Results: *All groups of patients reached higher scores on VMO-2 and revealed more personality pathology as compared to the control group. There were differences in specific personality scales between patients of different diagnostic groups. The schizotypal PD scale discriminated significantly between patients with schizophrenia and the majority of other diagnostic groups. The group of patients with opioid dependence disorder reached the highest mean score on the scale for antisocial PD.*

Conclusion: *Our results on VMO-2 show partial support for psychodynamic and cognitive theories of personality pathology. Results are also in accordance with other empirical studies which show that some characteristics of PDs relate to specific mental disorders. We discuss methodological problems regarding some uncontrolled factors which could influence the results of our study. Despite some limitations the present study confirms the relationship between the phenomenological aspect of personality pathology and mental disorders.*

Key words: *personality disorders - assessment of personality disorders - self-report personality measures - mental disorders*

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INTRODUCTION

Personality disorders (PDs) are one of the most ambiguous diagnostic categories in psychiatry and clinical psychology. Historically much criticism has been directed toward general concepts and specific categories of PD, which resulted in many changes of official medical diagnostic classifications. According to DSM-IV-TR (APA 2000) the PDs are enduring patterns of inner experience and behavior that deviate markedly from the expectations of the individual's culture, are pervasive and inflexible, have an onset in adolescence or early adulthood, are stable over time, and lead to significant distress or impairment in social, occupational or other important areas of functioning. They are manifested in cognition, affectivity, interpersonal functioning or/and impulse control. The pattern is not better accounted for as a manifestation or consequence of another mental disorder (from Axis I) and is not due to the direct physiological effects of a substance or a general medical condition. PDs from DSM-IV-TR Axis II are divided into three clusters: A) odd-eccentric; B) dramatic-emotional and; C) anxious-fearful. In regard to this categorical definition, the old problem of distinction between normality, healthiness and pathology is emerging (Canguilhem 1966; Jaspers 1975). For this reason many authors support a dimensional conceptualization of personality pathology (e.g. Livesley 2001).

The second question is related to the relationships between personality, PDs and other mental disorders. There is much empirical evidence for DSM-IV-TR Axis I and Axis II commorbidity (e.g. Costa & Widiger 1994; Millon 2009; Oldham et al. 1995; Zanarini et al. 1998). In this contex Peralta and Cuesta (2005) report a study which confirmed the disorder-specific relationship between PDs and psychotic disorders. The authors conclude that the premorbid personality may act as a specific predsiposition to a certain psychotic disorder (e.g. schizotypal, schizoid and antisocial PDs were related to schizophrenia, paranoid PD was related to delusional disorder). In his review of the relationship between personality and mental disorders Millon (1996) offers a potential theoretical explanation of the relationship in three different models: the vulnerability model, the complication model and the pathoplasty model. According to these models a single mental disorder can be a cause, result or only coincidence of personality. Kernberg (1986) links personality and mental pathology as well. He proposes three groups of personality organization for patients with mental disorders: neurotic,

borderline and psychotic personality organization. These types of personality organizations are embedded in the patient's overriding characteristics, particularly with regard to his degree of identity integration, the types of defensive operations he habitually employs and his capacity for reality testing. According to Kernberg (1986) borderline personality organization has the strongest associations with Axis II PDs from DSM-IV-TR Clusters A and B (APA 2000) as well as with Axis I severe mental disorders such as schizophrenia, bipolar disorder or major depression. Neurotic personality organization is related with a less severe form of psychopathology, e.g., mild depression, neuroses and personality pathology from Axis II DSM-IV-TR Cluster C.

Personality can be understood from intrapsychic, behavioral, interpersonal, cognitive, neurobiological and evolutional points of view (Livesley 2001). In the present study, we focused on the intrapsychic aspect of personality pathology, particularly on the cognitive and psychoanalytic models. From a cognitive perspective, Beck and coworkers (Beck et al. 2004) emphasized basic dysfunctional beliefs about self or other people and patterns of behavior that are characteristic for people with PDs. These cognitive schemas are the result of the interaction between the individual's genetic predisposition, the exposure of undesirable influences from other people and specific traumatic events. Dysfunctional beliefs are extreme, rigid, imperative and overgeneralized. In people with PDs, the maladaptive schemas are a part of normal, everyday processing of information. They are in contradiction with reality, provoke disturbances in social relationships and cause painful self-experiences. Table 1 presents basic cognitive beliefs that are typical for a specific PD.

Table 1: Basic beliefs associated with traditional PDs (Beck et al. 2004, pp 21)

Personality Disorder	Basic Beliefs
Dependent	I am helpless.
Avoidant	I may get hurt.
Passive-aggressive	I could be stepped on.
Paranoid	People are potential adversaries.
Narcissistic	I am special.
Histrionic	I need to impress.
Obsessive-compulsive	Errors are bad. I must not err.
Antisocial	People are there to be taken.
Schizoid	I need plenty of space.

From the psychoanalytic point of view an important problem of people with PDs is the painful and disordered experience of self. The psychoanalytic theories give Beck's basic beliefs a broader and deeper meaning (Kernberg 1986, Millon 1996, Masterson 2000). For example, Federn (1953) described the nucleus of schizoid structure which is connected with fear against emotional closeness because of the need to defend self-integrity and weak ego-boundaries. The characteristic of obsessive-compulsive personality is the fear of transitoriness and striving after constancy and stability (Schultz-Hencke 1951). These can be preserved only if the person makes no errors. According to Schulz-Hencke (1951) people with a depressive and dependent personality structure have a basic anxiety of loss and fear of autonomy which leads to feelings of helplessness, if they are left alone. A fear of inevitability and necessity is typical for hysteric personality, which results in a constant need for new experiences and the affection of others. In essence the paranoid and antisocial personalities have a lack of control and regulation of aggressive feelings; there is an attempt to compensate through immature defenses such as acting out, projective identification, negation and splitting (Kernberg 1986). Paranoid personalities project their own aggression into other people in order to protect themselves. Antisocial personalities strive for power and domination over other people because of their own negative self-evaluation. They try to improve self-esteem by gaining control and power over others. From the aspect of self-psychology the narcissistic »I am special« is just an external expression of the unstable inner feelings of self-worthlessness and insufficiency of ego structure (Kohut 1977). We believe these characteristics of personalities are reflected in specific cognitive beliefs about self and other people and can be detected on self-report inventories as phenomenological aspects of specific PD.

Personality inventories are supposed to provide an objective measure of the PDs (Butcher & Finn 1983). They are based upon presumption that people who answer self-report questionnaires are capable of answering the questions in an objective and realiable manner. Unfortunately, self-evaluation and self-report of patients with different mental disorders can be very unrealistic and unstable so the realibility and validity of self-report personality measures can be unsatisfactory. For instance, patients with the depressive disorders may assess themselves extremely negatively and on the other hand, self-assessment of psychotic or obsessive-compulsive patients may be overestimated. According to psychoanalytic theory, patients, particularly those with severe personality pathology, are not aware of many important aspects of their personality from which the major problems originate (Kernberg 1986). One of the main characteristics of the PDs is the lack of insight or the ego-syntonic orientation. This may influence the way people present themselves on self-report personality measures which in turn leads to invalid results. For example, on self-report questionnaires people with PDs easily exaggerate or deny the presence of maladaptive personality traits because the targets of assessment are obvious (Widiger & Frances 1987; Clark & Harrison 2001). This weakness of self-report instruments may results in their poor validity in the clinical setting. We conclude that in order to improve the validity of self-report instruments the items should reflect not only the criteria for a specific disorder (e.g. DSM-IV) but also the phenomenology or subjective aspects of the disorder being assessed.

The main aim of our study is to identify phenomenological aspects of personality pathology in patients with different mental disorders via self-evaluation. Our research investigates the differences between patients with different mental disorders and a non-patient control group in dysfunctional beliefs about self and others, which are linked to a specific PD. Our main hypotheses are: a) there is a strong occurrence of PDs in patients with different mental disorders and; b) the difference between diagnostic groups of mental disorders is in accordance with the psychoanalytic and cognitive theories of personality pathology and can be detected via a self –report personality measure. We expect that patients with severe mental disorders (e.g. with psychotic disorders) reveal more cluster A and B (odd-eccentric and dramatic-emotional) PD (according to DSM-IV-TR; APA, 2000) and severe personality pathology (Beck et al. 2004; Kernberg 1986), compared to the patients from less severe (nonpsychotic or neurotic) diagnostics groups and healthy controls. The latter are supposed to relate more with cluster C (anxious-fearful), less severe PD. In addition we expect that psychiatric patients in general reveal significantly more personality pathology as compared to a control sample of healthy adults.

SUBJECTS AND METHODS

Sample

The sample of 642 adult psychiatric patients (54.2% men and 45.8% women) and 477 controls served as subjects in this study which has been approved by an ethics committee and conforms to the provisions of the Declaration of Helsinki. Prior to the study, the informed consent of all participants was obtained and their anonymity was preserved. The average age of the patients was 35.9 years (SD=11.7), the average schooling was 12.2 years (SD=1.9). Only Slovenians participated in our sample. The patients were admitted to a public inpatient psychiatric facility in Slovenia between 2007 and 2011. We excluded patients during the phase of acute psychosis or severe distress, patients with severe comorbid somatic illness, patients with Axis II comorbidity and patients that were intoxicated by alcohol or drugs. The patients were assessed prior to the study in order to determine their current diagnosis. The division into diagnostic groups was a result of agreement between two licensed psychiatrists, performing separate comprehensive intake evaluations of symptoms and history via the Structured Clinical Interview for DSM–IV (SCID; First et al. 1997). The results revealed moderate to excellent inter-rater agreement of the Axis I and Axis II disorders based on the SCID (κ=0.70 to 1.00). In cases of discrepancies, final diagnoses were made by consensus. According to DSM-IV, patients were classified as follows: schizophrenia (n=64), delusional disorder (n=58), brief psychotic disorder (n=61), mood disorders with psychotic features (n=47), depressive disorders without psychotic features (n=71), anxiety disorders (n=103), alcohol dependence disorder (n=81), opioid dependence disorder (n=96) and personality disorders without Axis I comorbidity (borderline PD: n=51; schizotypal PD, n=5; schizoid PD, n=2; dependent PD, n=2; paranoid PD, n=1). The patients with Axis I diagnosis had no comorbid Axis II diagnosis, but could have a comorbid mental disorder on Axis I – the latter was the case in 60% of patients with Axis I disorder. In the majority of these patients the comorbid Axis I disorder was generalized anxiety disorder, panic disorder, dystimia, depressive disorder without psychotic features and posttraumatic stress disorder. If that type of comorbidity occurred, the primal Axis I diagnosis was used for classification into subgroups in our research sample. Due to high comorbidity of anxiety and depressive disorders we joined groups of patients with depressive and anxiety disorders. At least one antipsychotic, antidepressant or anxiolytic medication was prescribed to every patient (an exception were patients with alcohol dependence who did not receive any medications).

The control sample included 477 healthy individuals (33% men and 67% women). The sample was selected in the general population from different (randomly selected) surroundings: workers from general hospital Jesenice, local clothing factory workers and students of the University of Ljubljana. The controls represented the Slovenian population. They were matched for age, sex and educational level to a sample of psychiatric patients as well. Participants in this sample were screened for a history of mental disorders or severe medical illness. The mean age of the control sample was 35.4 years (SD=11.4); the average schooling of subjects was 12.7 years (SD=1.9). To assess for potential confounding demographic variables between the clinical and control sample, we performed chi-square test on gender and t-tests on age and education. For gender, the chi-square test indicated significant differences χ^2 (1, n=1119)=11.01, p<0.01 (two-tailed). Because of important gender differences on VMO-2 scales of the control and clinical sample (Table 4 and Table 5) we performed separate statistics for the female and male groups. The t-test statistics indicated no significant difference between clinical and control sample in age (t=1.83, p>0.05; Cohen's d=0.05). There were some differences between samples in education (t=4.48, p<0.01; Cohen's d=0.26) although we found no significant effect of education on VMO-2 scores (Table 4 and Table 5).

Measures

Questionnaire of Personality Disorders - 2nd revision (VMO; Benedik 2004; 2007)

We constructed the items and scales of VMO and VMO-2 on the basis of DSM-IV-TR classification of PDs on Axis II (Benedik 2004). The DSM-IV-TR criteria were compared and integrated with Beck's basic cognitive schemas for PDs (Beck et al. 2004) and with psychoanalytic object relational theory of personality

(Kernberg 1986; Mahler 1986). The items were constructed in regard to the phenomenological point of view so the primary interest in content validity of items was the mode in which patients with mental disorders experience themselves and others. The following references were the basis for item construction and selection: Personality disorders: DSM-IV and beyond (Millon 1996), Character and self-experience (Josephs 1995), Cognitive therapy of personality disorders (Beck et al. 2004), Severe personality disorders (Kernberg 1996) and Cognitive therapy for personality disorders (Young 1999).

The items of first version of VMO (Benedik 2004) were constructed on the basis of psycho-dynamical interpretation (Josephs 1995; Kernberg 1996) and cognitive descriptions (Beck et al. 2004) of DSM-IV criteria (APA 2000). Items of VMO reflect the phenomenological perspective of specific PD. The face validity was evaluated by accordance of judgments between three independent psychologists. For agreement on items for the 12 scales, the kappa coefficients ranged from 0.55 to 0.75 (M=0.63). The final selection of 193 items represents 10 personality scales of VMO (for histrionic, obsessive-compulsive, avoidant, dependent, narcissistic, borderline, antisocial, paranoid, schizoid and schizotypal PD) with the addition of the scale for depressive PD and the validity scale. The VMO was constructed for clinical assessment of personality characteristics in patients with different mental disorders. The detailed description of construction and validation process of VMO items is presented elsewhere (Benedik 2007). The VMO-2 represents a revised version of VMO with minor changes in some of the items regarding their content and order. Those changes significantly improved reliability and validity of VMO-2 scales. In order to improve the quality of VMO-2 norms we also increased our normative sample and introduced some sampling changes which made the VMO-2 normative sample more representative of general population.

On VMO-2 the respondents are asked to indicate the degree to which each item is characteristic for them on a Likert-type 5-point scale (1- strongly disagree, 2- mostly disagree, 3- partly agree, 4-mostly agree, 5-strongly agree). The scale scores were derived from this measure as the sum of specific items which describe the corresponding disorder. The examples of items of scales for specific personality disorder are presented in Table 2. A global score for personality disorder is the sum of all subscale scores. It is supposed that the level of global VMO-2 score represents the level of severity of disorders on different personality domains.

Reliability of the VMO-2 was supported by internal consistency analyses of scales item sets. Table 3 represents Cronbach's alpha and Spearman-Brown's split-half coefficients for specific VMO-2 scale (mixed sample of patients and controls). Before final selection 10 items were excluded due to poor internal consistency.

Table 2. Example items of VMO-2 scales

No.	Item
1	If I don't entertain people, they won't like me (histrionic PD)
2	I need order, systems and rules in order to get the job done properly (obsessive-compulsive PD)
3	I like to be inconspicuous; I don't want to attract attention (avoidant PD)
4	I have tried to hurt or kill myself (borderline PD)
5	My helper must be nurturing and supportive (dependent PD)
6	By looking at me, people might think that I'm eccentric or odd (schizotypal PD)
7	I am special and shouldn't have to accept many of the restrictions placed on other people (narcissistic PD)
8	I rather do things by myself than with other people (schizoid PD)
9	Other people are weak and deserve to be exploited (antisocial PD)
10	I am a pessimist (depressive PD)
11	Other people have secret intentions; they are usually not what they appear (paranoid PD)

Table 3. Reliability analysis of VMO-2 scales (N=1119)

VMO-2 Scale	N of items	Alpha	Spearman-Brown
Obsessive-compulsive PD	18	0.81	0.78
Avoidant PD	20	0.87	0.85
Dependent PD	14	0.84	0.80
Depressive PD	25	0.91	0.89
Histrionic PD	17	0.84	0.79
Narcissistic PD	16	0.81	0.77
Borderline PD	23	0.89	0.89
Antisocial PD	19	0.82	0.79
Paranoid PD	20	0.86	0.84
Schizoid PD	23	0.91	0.90
Schizotypal PD	15	0.86	0.84
Lie scale	11	0.73	0.66
Global score	193	0.96	0.93

Table 4 presents differences between genders on VMO-2 scales for control sample. The t-test indicated significant differences between genders on scales for narcissistic, antisocial and schizoid PD. We computed Cohen's (1988) d effect sizes with adjustment for unequal sample sizes as well. The results indicated small to moderate effect sizes for VMO-2 scales. Men tend to reach a higher score than women on the scale for antisocial PD. This finding could reflect personality differences between genders and not necessarily differences in pathology. Table 5 presents significant differences between genders on VMO-2 scales for the clinical sample (e.g. for antisocial PD). The gender differences in PDs were revealed by some other studies with patients as well. In one study men were significantly more likely than women to meet criteria for narcissistic, antisocial, and obsessive-compulsive personality disorder measured by the questionnaires or interviews (Corbitt & Widiger 1995; Golom et al. 1995). Some items in personality questionnaires and clasiffication systems cold be gender biased (Widiger 1998) so we did separate statistics for men and women.

Table 4 and Table 5 present correlation coefficients of VMO-2 scales with education of control and clinical group. The Pearson's r revealed a small effect of education on VMO-2 scores (correlation coefficients ranged from non significant to r=0.23).

Criterion validity was evaluated by comparison with Personality Diagnostic Questionnaire – Version 4+ (Hyler 1994). As expected, significant correlation between VMO-2 and PDQ-IV+ scales was found in a sample of psychiatric patients with different mental disorders. Correlations between VMO-2 and PDQ-4+ scales which measure same construct ranged from r=0.43 to r=0.78, all p<0.001. Global scores of questionnaires were in strong positive correlation (r=0.78) which supports validity of VMO-2. Different personality scales of both measures were in strong positive correlations as well which is according with the expectations that many PDs are not independent.

Table 4. T-test statistics and effect sizes comparing men to women and correlations of the VMO-2 scales with the education level (Control sample, N=477)

VMO-2 Scale	Gender					Education	
	M_W	M_M	t-test (df=475)	p value	Cohen's d	Pearson's r	p value
Obsessive-compulsive PD	47.32	47.53	-0.24	0.81	-0.02	-0.18	<0.01
Avoidant PD	39.12	39.69	-0.69	0.49	-0.07	-0.08	0.07
Dependent PD	34.98	33.23	2.19	0.03	0.22	-0.08	0.07
Depressive PD	55.50	53.83	1.58	0.11	0.16	-0.07	0.10
Histrionic PD	44.41	43.85	0.63	0.53	0.07	0.01	0.81
Narcissistic PD	31.11	33.35	-3.14	<0.01	-0.30	-0.03	0.47
Borderline PD	48.04	47.55	0.43	0.67	0.03	0.02	0.62
Antisocial PD	29.48	34.14	-5.84	<0.01	-0.59	-0.04	0.39
Paranoid PD	45.75	47.52	-1.78	0.08	-0.18	-0.23	<0.01
Schizoid PD	41.94	44.92	-2.92	<0.01	-0.29	0.05	0.31
Schizotypal PD	28.18	27.05	1.45	0.15	0.14	0.01	0.67
Lie scale	34.57	34.70	-0.18	0.15	-0.02	-0.18	<0.01
Global score	445.77	452.67	-0.79	0.33	-0.09	-0.08	0.08

Note: W=women; M=men

Table 5. T-test statistics and effect sizes comparing men to women and correlations of the VMO-2 scales with the education level (Patients, N= 642)

VMO-2 Scale	Gender					Education	
	M_W	M_M	t-test (df=475)	p value	Cohen's d	Pearson's r	p value
Obsessive-compulsive PD	56.92	55.38	1.98	0.05	0.15	-0.12	<0.01
Avoidant PD	52.45	49.51	2.99	<0.01	0.24	-0.04	0.28
Dependent PD	45.11	41.85	4.42	<0.01	0.34	-0.08	0.14
Depressive PD	77.84	70.68	5.67	<0.01	0.43	-0.01	0.01
Histrionic PD	40.33	43.63	-3.92	<0.01	-0.31	0.01	0.92
Narcissistic PD	33.69	35.86	-3.01	<0.01	-0.24	-0.06	0.13
Borderline PD	62.30	61.00	1.05	0.30	0.08	-0.09	0.03
Antisocial PD	32.24	36.93	-6.31	<0.01	-0.52	-0.21	<0.01
Paranoid PD	56.47	56.91	-0.49	0.62	-0.03	-0.23	<0.01
Schizoid PD	59.39	57.00	1.90	0.06	0.15	-0.03	0.48
Schizotypal PD	34.63	32.94	2.02	0.04	0.16	0.13	<0.01
Lie scale	33.93	31.79	3.82	<0.01	0.28	0.07	0.07
Global score	551.37	541.70	1.30	0.20	0.10	0.13	<0.01

Note: W=women; M=men

RESULTS

First we examined the mean differences between group of psychiatric patients and controls regarding the VMO-2 variables. All VMO-2 scales reached criteria for normal distribution. We used the Bonfferoni adjustment to protect against inflated Type 1 error. Table 6 represents t-test statistics separately for female and male samples. To assess for practical importance, we computed Cohen's (1988) d effect sizes with adjustment for unequal sample sizes.

Significant differences on VMO-2 scales were observed between the groups. Healthy controls of both genders differed from the group of psychiatric patients in lower scores on almost all personality scales and also on global score. The only exception is the Histrionic PD scale where we found no significant differences between patients and normal controls in the male sample (Table 6). Surprisingly, healthy women reached significantly higher scores on this scale than did female patients. Tables 7 and 8 show significant differences (the ANOVA's test) on PDs scales for each diagnostic group as compared to the control sample specifically for males and females (bolded). We found strong occurrence of different PDs characteristics in each diagnostic group, except for histrionic and partly narcissistic PD, compared to the control group.

In addition Tables 7 and 8 show descriptive statistics for VMO-2 scales for female and male diagnostic subgroups. Due to the large amount of data and we excluded patients with less stable diagnosis (brief psychotic disorders and "mixed symptoms" category of mood disorders with psychotic features). The highest score for each personality scale is underlined. Patients with PDs of both genders reached the highest scores on VMO-2 scales compared to groups of patients with other disorders.

Table 6. T-test statistics and effect sizes comparing patients to control group

VMO-2 Scale	Female					Male				
	M_{WP}	M_{WC}	t-test (df=639)	p value	Cohen's d	M_{MP}	M_{MC}	t-test (df=639)	p value	Cohen's d
Obs-comp PD	56.70	47.35	12.38	<0.01*	0.98	55.43	47.53	8.62	<0.01*	0.84
Avoidant PD	51.76	39.16	14.55	<0.01*	1.15	49.53	39.69	10.90	<0.01*	0.96
Dependent PD	44.47	35.03	13.18	<0.01*	1.05	41.85	33.23	10.20	<0.01*	1.02
Depressive PD	76.65	55.57	18.57	<0.01*	1.46	70.66	53.83	14.99	<0.01*	1.33
Histrionic PD	40.34	44.47	-5.25	<0.01*	-0.42	43.60	43.85	-0.25	0.80	-0.02
Narcissistic PD	33.51	31.16	3.68	<0.01*	0.30	35.90	33.35	3.07	<0.01*	0.30
Borderline PD	61.22	48.14	11.72	<0.01*	0.92	61.03	47.55	11.32	<0.01*	1.01
Antisocial PD	32.08	29.53	4.13	<0.01*	0.33	36.93	34.13	3.11	<0.01*	0.30
Paranoid PD	56.00	45.79	11.78	0.01*	0.93	56.95	47.52	8.08	<0.01*	0.87
Schizoid PD	58.03	42.01	15.27	<0.01*	1.20	57.07	44.92	10.16	<0.01*	0.91
Schizotypal PD	34.05	28.24	7.71	<0.01*	0.61	32.95	27.05	7.37	<0.01*	0.65
Lie scale	34.21	34.52	-0.56	0.58	-0.04	31.83	34.70	-4.26	<0.01*	-0.42
Global Score	544.82	446.40	15.18	<0.01*	1.20	541.92	452.67	11.46	<0.01*	1.04

Note: The Bonferroni adjusted p value is 0.0038. Cohen's d (1988) statistics were calculated using pooled variance and adjusted for unequal sample sizes; WP=women patients (n=294); WC=women controls (n=319); M_{WP}=average mean for WP group; M_{WC}=average mean for WC group; *-significant correlation

Table 7. Descriptive statistics for VMO-2 scales for female diagnostic subgroups

Group	OBS M(SD)	AVO M(SD)	DPD M(SD)	DEP M(SD)	HIS M(SD)	NAR M(SD)	BOR M(SD)	ANT M(SD)	PAR M(SD)	SHI M(SD)	SHZ M(SD)	LS M(SD)	GS M(SD)
Opioid dependence disorder (n=23)	54.13 (7.62)	50.13 (12.97)	46.87 (10.31)	76.43 (15.41)	43.74 (12.33)	33.83 (6.92)	68.48 (14.79)	*40.04* (9.92)	57.09 (8.23)	56.17 (14.70)	34.39 (8.91)	29.57 (6.48)	561.30 (90.34)
Alcohol dependence disorder (n=15)	57.60 (7.00)	51.40 (12.26)	*49.00* (9.27)	80.87 (13.02)	43.13 (9.35)	34.13 (8.08)	68.80 (14.57)	33.20 (8.06)	56.47 (12.89)	58.67 (14.35)	33.20 (4.96)	32.80 (7.13)	566.47 (74.53)
Depressive and anxiety disorders (n=110)	*57.67* (10.11)	53.15 (11.12)	44.59 (8.26)	79.00 (15.31)	37.94 (9.71)	31.22 (8.05)	60.51 (14.34)	29.09 (7.16)	53.96 (12.06)	58.47 (15.18)	31.54 (9.58)	34.41 (6.36)	537.15 (82.60)
Delusional disorder (n=29)	53.93 (10.31)	47.31 (9.77)	41.00 (7.34)	66.79 (12.26)	37.86 (7.62)	34.59 (10.21	51.00 (12.09)	30.90 (6.16)	55.14 (12.47)	55.24 (13.24)	33.10 (11.01)	*38.72* (5.61)	506.86 (84.94)
Schizophrenia (n=17)	54.53 (9.62)	51.18 (14.57)	43.11 (10.63)	72.00 (17.61)	*46.41* (14.12)	*38.11* (13.38)	61.53 (19.45)	35.06 (9.36)	57.24 (10.91)	60.18 (13.36)	*41.47* (14.37)	34.06 (6.85)	560.82 (103.12)
Personality disorders (n=40)	55.60 (10.95)	*54.95* (17.74)	46.62 (12.31)	*85.02* (21.68)	43.12 (11.79)	34.70 (9.52)	*69.87* (19.04)	37.12 (10.37)	*62.10* (10.13)	*63.72* (20.55)	37.95 (11.00)	31.72 (7.91)	*590.80* (104.26)

Note: OBS –Obsessive-compulsive PD scale; AVO – Avoidant PD scale; DPD – Dependent PD scale; DEP – Depressive PD scale; HIS – Histrionic PD scale; NAR – Narcissistic PD scale; BOR – Borderline PD scale; ANT – Antisocial PD scale; PAR – Paranoid PD scale; SHI – Schizoid PD scale; SHZ – Schizotypal PD scale; LS – Lie scale; GS – global score; *Italic*– highest M of specific VMO scale score; Shading - significantly elevated score compared to control sample (p<0.01).

Table 8. Descriptive Statistics for VMO-2 scores for male diagnostic subgroups

Group	OBS M(SD)	AVO M(SD)	DPD M(SD)	DEP M(SD)	HIS M(SD)	NAR M(SD)	BOR M(SD)	ANT M(SD)	PAR M(SD)	SHI M(SD)	SHZ M(SD)	LS M(SD)	GS M(SD)
Opioid dependence disorder (n=23)	52.29 (9.91)	43.96 (10.95)	41.77 (8.85)	68.78 (15.40)	44.10 (10.74)	33.51 (8.48)	61.84 (14.16)	*49.82* (8.66)	57.79 (10.86)	51.11 (14.55)	31.47 (10.59)	27.68 (7.17)	526.42 (90.32)
Alcohol dependence disorder (n=15)	55.21 (8.63)	50.03 (10.39)	42.33 (7.07)	71.48 (12.97)	41.91 (9.16)	34.98 (8.26)	*63.03 (12.37)*	38.12 (7.77)	57.68 (10.05)	57.33 (12.49)	30.80 (4.96)	32.15 (6.13)	542.92 (73.68)
Depressive and anxiety disorders (n=110)	*58.14* (10.14)	51.75 (13.38)	43.02 (9.94)	73.81 (15.87)	43.09 (11.21)	35.14 (9.09)	*59.02 (16.31)*	32.69 (9.00)	56.41 (13.14)	57.41 (18.06)	31.11 (11.62)	33.25 (7.21)	541.58 (108.35)
Delusional disorder (n=29)	55.41 (7.79)	47.83 (11.41)	38.55 (10.77)	66.76 (16.65)	43.00 (11.44)	38.29 (9.16)	56.97 (15.23)	36.90 (9.79)	57.38 (9.56)	56.52 (15.48)	33.59 (8.60)	*33.38* (5.73)	531.17 (97.73)
Schizophrenia (n=17)	55.72 (10.57)	52.83 (11.90)	*41.89 (9.60)*	71.32 (14.53)	44.38 (11.54)	36.62 (9.84)	61.89 (17.76)	36.60 (10.24)	54.40 (11.12)	61.36 (14.79)	*37.40* (11.95)	32.94 (6.58)	554.43 (105.20)
Personality disorders (n=40)	58.00 (9.37)	*55.62* (10.69)	*43.67 (9.68)*	*76.38* (13.44)	*44.62* (9.59)	*41.76* (8.32)	*66.83* (18.46)	42.43 (12.85)	*61.81* (11.11)	*66.33* (17.53)	37.05 (9.39)	30.24 (8.57)	*594.05* (95.13)

Note: OBS –Obsessive-compulsive PD scale; AVO – Avoidant PD scale; DPD – Dependent PD scale; DEP – Depressive PD scale; HIS – Histrionic PD scale; NAR – Narcissistic PD scale; BOR – Borderline PD scale; ANT – Antisocial PD scale; PAR – Paranoid PD scale; SHI – Schizoid PD scale; SHZ – Schizotypal PD scale; LS – Lie scale; GS – global score; *Italic*– highest M of specific VMO scale score; Shading - significantly elevated score compared to control sample ($p<0.01$).

Table 9. The VMO-2 differences between diagnostic groups (ANOVA)

VMO-2 scale	Female (N=294)				Male (N=348)		
	df	Mean Sq	F	Sig.	Mean Sq	F	Sig.
VMO OBS	8	138.50	1.41	p=0.19	187.89	2.04	p=0.04
VMO AVO	8	180.31	1.09	p=0.37	553.94	4.08	p<0.01[1]
VMO DPD	8	154.97	1.76	p=0.09	68.72	0.81	p=0.59
VMO DEP	8	878.50	3.25	p<0.01[1]	399.22	1.80	p=0.08
VMO HIS	8	312.70	2.83	p<0.01[1]	110.46	1.00	p=0.43
VMO NAR	8	192.74	2.36	p=0.02	215.07	2.74	p<0.01[1]
VMO BOR	8	1047.18	4.43	p<0.01[1]	432.26	1.86	p=0.06
VMO ANT	8	489.03	7.21	p<0.01[1]	441.17	5.25	p<0.01[1]
VMO PAR	8	293.98	2.20	p=0.03	161.51	1.25	p=0.27
VMO SHI	8	272.06	1.09	p=0.37	828.40	3.46	p<0.01[1]
VMO SHZ	8	397.02	3.70	p<0.01[1]	287.58	2.80	p<0.01[1]
VMO LS	8	183.09	4.13	p<0.01[1]	276.36	5.96	p<0.01[1]
VMO GS	8	19651.55	2.44	p=0.01[1]	16504.26	1.81	p=0.07

Note: [1] - correlation is significant at 0.01 level; OBS – Obsessive-compulsive PD scale; AVO – Avoidant PD scale; DPD – Dependent PD scale; DEP – Depressive PD scale; HIS – Histrionic PD scale; NAR – Narcissistic PD scale; BOR – Borderline PD scale; ANT – Antisocial PD scale; PAR – Paranoid PD scale; SHI – Schizoid PD scale; SHZ – Schizotypal PD scale; LS – Lie scale; GS – global score

The ANOVA's test revealed significant differences between diagnostic groups of both genders on scales for antisocial and schizotypal PD (Table 9). The group of patients with opioid dependence disorder reached the highest mean score on the scale for antisocial PD (Table 7 and 8). For example, the comparison of the female group of opioid dependence to the group of patients with nonpsychotic depressive and anxiety disorders who reached the lowest score on the scale for antisocial PD showed a significant difference (Cohen's d=1.27). Similar differences were found in the male diagnostic groups. Male patients with opioid dependence disorder reached significantly higher scores compared for example to the patients with nonpsychotic anxiety and depressive disorder (d=1.94) on the Antisocial PD scale.

In accordance with our expectations, the group of patients with schizophrenia reached the highest score on the Schizotypal PD scale (Tables 7 and 8). The lowest score on this personality scale was reached by male and female patients with alcohol dependence (d_M=0.80; d_W=0.77), anxiety and depressive disorders (d_M=0.81; d_W=0.53), and opioid dependence (d_M=0.51; d_W=0.53). We found no empirical support for Paranoid and Schizoid PD scales which, according to Kernberg's (1986) theory, are supposed to relate to DSM-IV-TR group A PDs and should also differeniate between severe and less severe psychopathology. However, the highest mean score on Schizoid VMO-2 scale as well as for many others VMO-2 scales (e.g. for narcississtic and borderline PD) was reached by a group of patients with DSM-IV diagnosis of PD (see Tables 7 and 8).

We found differences on the VMO-2 control (Lie) scale between diagnostic groups as well. Female patients with brief psychotic disorder and delusional

disorder reached the highest score on this scale. In comparison with female patients with opioid and alcohol dependence their self presentation is less critical and extremely positive (from d=0.69 to d=1.05).

The highest mean global VMO-2 score was reached by the group of patients with PDs (Tables 7 and 8). We obtained this result for female sample and partly for the male sample as well. According to our predictions, the group of female patients with DSM-IV diagnosis of PDs revealed more personality pathology on VMO-2 than patients with less severe pathology (for example patients with depressive and anxiety disorders (d=0.57). In the male sample we found a significant difference on Global VM0-2 scale between the group of patients with PDs and patients with depressive and anxiety disorders. Again, patients with PDs revealed more personality pathology than patients with depressive and anxiety disorders (d=0.51). The comparison between patients with delusional disorders and the non-psychotic group of patients (e.g. patients with depressive and anxiety disorders) showed no significant difference in personality pathology on VMO-2 scales (d_M=-0.10; d_W=-0.36). Due to the large amount of data we presented only those results which are most meaningful regarding the aim of our study.

DISCUSSION

A personality is a unique and relatively constant entity of all psychological characteristics that is in continuous interaction with an environment and with itself (Musek 1982). Every mental disorder or a psychopathological phenomenon has its own impact on personality. The vulnerability model (Millon 1996) defines personality as the main factor which determines if and how mental disorders will emerge.Conversely, any specific mental disorders could have their own expression in personality. From psychodynamical and cognitive theoretical perspective PDs are a broad term, not limited to the existing DSM-IV-TR Axis II categories (APA 2000). According to Kernberg (1986) PDs relate to mental disorders on DSM Axis I. This is supported by many empirical studies of commorbidity between personality pathology and mental disorders (e.g. Costa & Widiger 1994, Millon 1996, 2009). For example, many patients with borderline PD have concurrent Axis I diagnoses (Zimmerman & Mattia 1999). Our main interest in the present study was to investigate if personality pathology is related to specific mental disorders and what is the nature of that relationship.

PDs are complex phenomena from a a theoretical and clinical point of view. Especially complex is the problem of assessment of PDs. One of the possible ways to examine personality disturbances are self-report measures which assess the subject's experience of a disorder. This assessment is deteremined by the capacity of insight as well as by the willigness to make an open and sincere presentation to others. Assessment with self-report questionnaires which are based on dimensional conceptualization of personality pathology is common in clinical psychology. To avoid typical methodological weaknesses of self-report instruments (e.g. problem of transparency of items and uncritical self-assessment of participants), we constructed VMO (VMO-2), The Questionnaire for Personality Disorders (Benedik 2007), which is based on DSM-IV criteria for PDs, with addition of phenomenological, psychoanalytical and cognitive aspects of PDs. Statistical analysis of VMO-2 confirmed good internal consistency and criterion validity of the measure (see Method section).

The comparison between healthy controls and patients with mental disorders revealed significant differences on almost all PDs scales of VMO-2 (the only exception being Histrionic and partly Narcissistic scale). This result is typical for all diagnostic groups included in our study and is in accordance with our expectation that patients with mental disorders show more pathology on different personality domains compared to people without mental disorders. Our results revealed that this is especially true when we consider avoidant, dependent, depressive, borderline, paranoid and schizoid personality pathology, but not narcissistic and histrionic pathology. There could be several reasons for this finding. First, a very large number of tests performed on groups with very different sample sizes could have it's impact on the statistical significance of results. Second, the content analysis of items on both scales should be done in order to determine the specific items that may have contributed to unexpected results on these two scales. Third, we speculate that narsissistic and histrionic pathology could widely be present (or even accepted) in the general population, which would be in accordance with Lasch theorizing about the culture of narcissism (Lasch 1979). Last, we also emphasize that our study reflects a phemenological aspect of PDs and therefore the conclusions are not directly comparable with DSM-IV-TR Axis II diagnostic conceptualization of PDs. However, further validity analysis of VMO-2 scales are needed in order to better understand some of our current results.

Comparison of groups of patients with different mental disorders showed some significant differences on VMO-2 scales as well. First, both Antisocial and Schizotypal PD scale significantly differentiated between groups of patients with different mental disorders. Thus, the group of patients with opioid dependence disorder had significantly more antisocial characteristic of personality than other diagnostic groups of patients. This result is in accordance with growing support among researchers that show high correlation of antisocial PD with substance abuse (Messina 2001). This finding is probably related with different antisocial activities such as law violation and criminal behavior (e.g. stealing, lying, illegal traffic of drugs etc.) of people with substance abuse problems.

The schizotypal PD scale discriminated significantly between patients with schizophrenia and the majority of other diagnostic groups (anxiety disorders, depressive disorders, delusional disorders, opioid and alcohol depen-

dence). Patients with schizophrenia obtained a significantly higher score on Schizotypal PD scale, which is in accordance with our expectation and previous empirical findings that schizotypal PD relates to schizophrenia via biological and genetic factors (Siever 1994).

Second, analysis of personality characteristics in the group of patients with DSM-IV-TR PDs (mainly borderline type) showed that this group of patients reached highest global VMO-2 mean score compared to other DSM-IV diagnostic groups. This result supports our hypothesis that patients with DSM-IV PDs shows more personality pathology as compared to patients with less severe psychopathology (e.g. DSM-IV depressive and anxiety disorders).

Third, the results show some differences in personality pathology on VMO-2 between diagnostic groups of mental disorders, although the differences are not as extensive as we expected according to Kernberg's psychoanalytic theory of different levels of personality pathology. Hence, we expected more personality pathology in the group of patients with psychotic disorders as compared to other diagnostic groups in our study. In contrast to our expectation we found no evidence of any other VMO-2 personality pathology which is, according to theory (Kernberg 1986) and empirical research (Millon 2009), typical for patients with psychotic disorders (e.g. schizoid or paranoid PD). Our results show that apparently schizoid personality characteristics are not predominant in patients with psychotic disorders, but are typical among patients with other mental disorders as well (particularly in patients with PDs). One speculative explanation of these results could be related to more unrealistic self-report of patients with psychotic disorders who present themselves in a more false negative way due to use of denial as a premature defense mechanism (Federn 1953) that helps them cope with problems of everyday living. This is supported by some results in our study. For example, female patients with brief psychotic and delusional disorder reached higher results on Lie scale. This finding supports our hypothesis that psychotic patients present themselves in a more positive and uncritical way. Unfortunately, VMO-2 has only one validity scale, so we could not confirm this hypothesis. But it seems that in our study the old problem of validity of self-report measures still exists, regardless of the phenomenological method which was being used in order to avoid problematic validity issues. On the other hand these results support Modell's theorising (1986) that we cannot detect psychological differences between borderline and the schizophrenic patients when the latter are outside of acute psychotic episodes.

CONCLUSION

The present study supports the relationship between personality and mental disorders. First, patients with different mental disorders reached higher scores on VMO-2 global scale and many subscales for PDs compared to healthy controls. This was true for all diagnostic groups included in the study. These results show that patients with mental disorders report more personality problems than healthy individuals which is in accordance with psychoanalytic and cognitive personality theories and also with empirical studies that link personality disturbances to mental disorders. Second, the hypothesis about significant differences between severe and mild VMO-2 personality pathology according to severity of DSM-IV psychopathology was only partly confirmed. Thus, the group of patients with schizophrenia showed more characteristics of schizotypal personality pathology compared to other groups of patients. In contrast to our hypothesis about significant differences between level of personality pathology and level of severity of mental disorders, the results showed that schizoid and paranoid personality disturbances do not differentiate severe and modest mental pathology according to DSM-IV as we expected. To sum up, the question of ability to detect phenomenological differences in maturity of personality organization between psychotic and non-psychotic patients is still open to further research.

There may be some uncontrolled factors which influenced the results of our study. First, our study was based solely on phenomenological aspects of mental disorders. Second, assessment of phenomenological characteristics of PDs may not eliminate validity problems of self-report measures. Third, the self report questionnaire VMO-2, which we used in the study, needs more validity studies and construction of additional validity scales. Further studies should include more complex dimensions in the assessment of PDs in patients with mental disorders, e.g. assessment of behavioral and mental functioning with performance based personality tests.

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