Open Access

Relationship between personality disorders and headaches using PID for DSM-5

*[1]**Svetlana Lozovanu,** MD, PhD, Associate professor; [1,2]**Ion Moldovanu,** MD, PhD, Professor;
[1]**Victor Vovc,** MD, PhD, Professor; [2]**Iuliana Romaniuc,** MD; [1]**Tudor Besleaga,** MD, PhD, Associate professor;
[1]**Andrei Ganenco,** MD, Assistant Professor

[1]Department of Physiology and Biophysics, Nicolae Testemitsanu State University of Medicine and Pharmacy
[2]Department of Headache and Autonomic Disorders, Institute of Neurology and Neurosurgery
Chisinau, the Republic of Moldova

*Corresponding author: svetlana.lozovanu@usmf.md
Manuscript received October 29, 2018; revised manuscript December 15, 2018

Abstract

Background: Studies on the specificity of migraine headache in patients with personality disorders are multiple. Results are often contradictory, which may be explained by psychological, socio-cultural, economic and purely individual differences of subjects.

Material and methods: 128 patients from the Department of Headache and Autonomic Disorders of the Institute of Neurology and Neurosurgery (Chisinau, the Republic of Moldova) were evaluated in this study, in 2 stages: psychometric testing using Personality Inventory Disorders (PID-5) for DSM-5 in the 1st stage and data collection, headache intensity assessment and Headache Questionnaire in the 2nd stage.

Results: The results of psychometric test allowed to separate the examined subjects into 3 groups according to numeric values of facets of PID-5: group I – Normal (0-1), group II – Accentuated Personality (1 – 1.66), group III – Personality Disorder (>1.66), and these results were correlated with intensity and frequency of headache. The analysis of 25 facets of PID-5, which are included in 5 domains of higher order: Negative Affection, Antagonism, Disinhibition, Detachment and Psychoticism, divided the domains into 3 groups: Internalization, Externalization and Psychoticism. These values were correlated again with intensity and frequency of headache.

Conclusions: Female gender has a higher introversion tendency than males, introversion and neurosis is more common among women with migraine; the onset of personality disorders occurs during early youth.

Key words: personality disorder, PID-5, headache.

Introduction

A basic hypothesis of personality theory claims that individual behavior is constant in different contexts. This fundamental assumption was strongly disputed by several authors, with asserting the circumstances as the most important determinant of behaviour. However, there are many statements that the conservation over time of the recurrent migraine attacks features and of the traits of personality are probably linked together.

Over the years, many studies have been focused on the connection between particular personality traits and headache syndromes. Many researchers have used the Minnesota Multiphasic Personality Inventory (MMPI) to investigate the personality profiles of people with headaches. The neurotic triad – hypochondria, hysteria and depression in tensional and migraine headaches has been presented by many studies. It is sensible to assume that certain personality traits may increase the vulnerability of a person suffering headaches. Disputed questions are related to personality traits of patients with tension-type headache and migraine and the differences with healthy subjects [5, 7].

Personality disorders affect about 10% of the general population and are typically refractory to standard phar-macology and behavioral interventions [4, 20]. The rate of migraine and the rate of personality disorder are higher in women, and the gender differences influence the perception of pain as well as the style of coping [9, 13, 19]. The scores of introversion and the incidence of neurosis are significantly higher among women with migraine [8, 23]. A study on female migraine patients has reported a strong correlation between symptoms of neurosis and headache duration (r = 0.51) [13, 15]. Contrariwise another large study, including men and women, has no found relationship between severity of neurosis and duration of headache [6, 20].

Headache is a common phenomenon in everyday life and in the clinic, constituting an important public health problem, with a large impact at individual and society level, confirmed by multiple epidemiological researches, which attests to a high prevalence of headache of the population. Described since ancient times, headache, as well as the problem of pain in general, has become in recent years one of the most advanced chapters of medicine [7, 16].

Tensional headache (TH) is the most prevalent of all headaches, and it is also one of the most expensive clinical conditions for the health system. The knowledge of tensional headache is still quite limited despite the significant

impact of this disorder on patients' lives and the existence of established diagnostic criteria. There is a group of patients with the chronic subtype of this headache, whose quality of life is greatly compromised [18, 14, 24].

The presence of psychological symptoms has been highlighted in patients with migraine. Several studies have investigated personality traits using structured tools: The Personality in Vivo for DSM-5, PID of the Manual of Diagnosis and Statistics of Mental Disorders, 5th (DSM-5) [1, 2, 3]. The International Classification of Headache Disorders (ICHD) was applied for migraine patients. These studies have proved a 2-4-fold greater risk of major depression in migraine patients. This association between migraine and depression is much stronger for migraine with aura. Other findings are: higher risk of panic disorder, phobic disorder, generalized or post-traumatic stress disorder [20].

Onset, development, clinical picture and treatment of headaches depend heavily on the psychological state of the patient. Patients with personality disorders (PD) respond differently to pain than healthy people from this point of view. Several recent studies suggest that people with migraine are more likely to suffer personality disorder than people without migraine. Personality disorders affect 26% of patients with chronic refractory headache, the most common being: borderline, narcissistic, antisocial, avoidant, obsessive-compulsive [11, 20]. The profile of personality seems to be linked with the frequency of headaches, connections to somatic problems, excessive use of medication [20].

A personality disorder or an accentuated personality could explain the resistance to treatment of headache. It is important to note these differences in the therapeutic approach to these patients. The inclusion of psychotherapy, psychiatric drugs, in addition to analgesics, would considerably diminish the suffering of these patients; improve the quality of the therapeutic act, and the quality of life of the suffering person.

Since migraine pain is intense and disabling for patients, it is possible for transforming into chronic form. The association of migraine pain with personality disorders possibly aggravates the development of the disease. Thus, it is important to study the characteristics of migraine pain in patients with personality disorders, to assess the degree of severity, and to choose the appropriate treatment options and prophylaxis.

Recent data on affective and personality disorders in patients with migraine are often contradictory (which can be explained by the socio-cultural, economic and individual psychological differences). Factor analysis identified two factors that are likely to be the two mechanisms that "control" human behavior, as well as his psycho-physiological state. The authors emphasize the methodological difficulties in solving the puzzle of "migraine personality"; especially, the fact that affective disorders are almost an inevitable comorbidity of migraine, which "overshadows" the access to the true personality of the patient, as such. The authors point out the difficulty of future studies that will take into account the insights of recent publications in the study of

headache and associated comorbidities, as well as modern approaches related to the new vision of the concept of personality disorder (accordingly to DSM-5) [17]. There are few comparative studies on the patients with two (or more) different headache syndromes. The specificity of migraine pain in patients with personality disorders is still little investigated [5, 6].

The goal is the study of the personality disorder's degree correlation with the clinical profile in patients with migraine headache and tensional headache.

Objectives: 1. Studying the characteristics of migraine pain and tensional headache depending on the degree of personality disorder; 2. Analysis of the specificity of headache according to the type of personality disorders.

Material and methods

128 patients from the Department of Headache and Autonomic Disorders of the Institute of Neurology and Neurosurgery (Chisinau, the Republic of Moldova) were evaluated in this study between March 2016 and February 2017. The diagnosis was already confirmed in all patients. The average age of patients was 32.5 years (from 18 until 59 years of age). The study evaluated the patients in two stages.

First stage – Psychometric testing

The Personality Disorder Inventory (Personality Inventory for DSM-5 (the Manual of Diagnosis and Statistics of Mental Disorders), PID-5, is a tool for assessing personality traits, developed by the American Psychiatric Association (AAP) in 2012. In 2011, the AAP proposed a substantial revision of the methods of diagnosing personality disorders. This proposal included a hybrid model in which a categorical diagnosis of personality disorder is divided on the basis of dimensional and pathological personality features.

The analytical approach is based on modern psychometrics tools [12].

Inventory of Personality for the DSM-5 (PID-5) has been translated and validated by a working group made up of collaborators of the Department of Human Physiology and Biophysics, and the Department of Headache and Autonomic Disorders within the Institute of Neurology and Neurosurgery, in compliance with norms of translation, adaptation and validation of International Test Commission and with the consent of the authors.

### The Structure and Contents of the Inventory of Personality for DSM-5

Inventory consists of 220 items of self-report and is used to measure disadaptative traits of personality. The responses are selected from 4 variants, from 0 ("very false or often false") till 3. Thus, PID-5 provides scores evaluated on a scale of 4 points, on the 25 facets.

Each facet includes four to fourteen elements. These characteristics correspond to the features of disability of personality, described in the section III of the DSM -5, included in five domains of higher order: negative affect, separation, antipathy, disinhibition and psychoticism. The score higher than 2 of a certain feature makes quantitative

ORIGINAL RESEARCH

S. Lozovanu et al. Moldovan Medical Journal. December 2018; 61(4):29-35

estimation of one of the six types of personality: Antisocial, Borderline, Schizotypal, Evasive, Obsessive Compulsive or Narcissistic [1, 2].

Generally, based on the results obtained from the PID-5 test, it is possible to allocate the numerical scores for each feature from which the profile of the personality disorder is formed.

For example, for the borderline personality disorder we study the distribution of the numerical results of 7 facets. For a positive result, 4 of the 7 must be above the 2 on the ordinate axis (fig. 1).
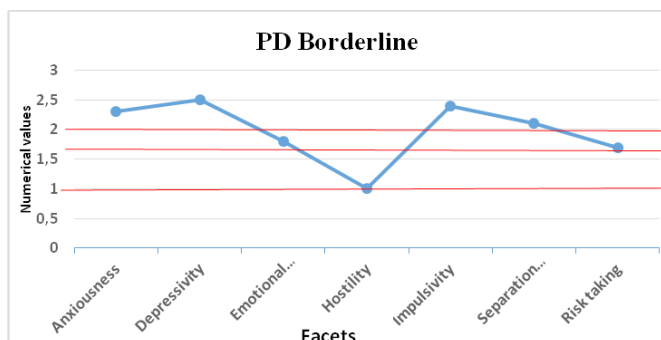
Fig. 1. Profile of personality disorder Borderline (of one patient).

Note: distribution of numerical values of 7 facets is studied for personality disorder borderline. A positive resultat is attested when 4 from 7 values are greater than 2.

For most patients included in the study, PID scores attained high numerical values for facets but did not reach the value of 2 (on the graph of the ordinate axis), these could only be placed "at the limit of disorder", as they did not accumulate the number of points needed to be included in the group of subjects with personality disorders (fig. 2).
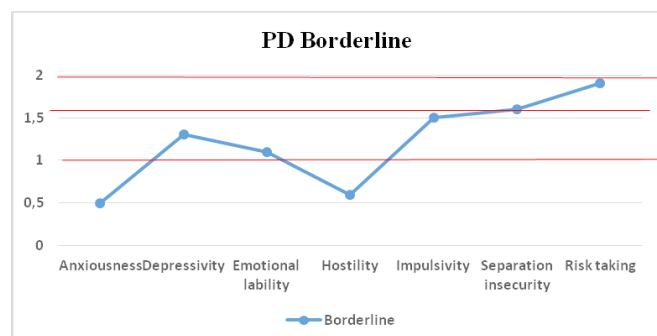
Fig. 2. Profile of the traits of personality in the subject with accentuated personality.

Note: subjects with personality disorder borderline, with numerical values of PID facets greater than 1.66.

Figure 2 shows that the numerical results of the PID that generates the Borderline personality disorder were distributed below the value of two, which indicates that the person does not have a definite disorder, however, up to 1, i.e. within the limits of the norm there are only two facets (anxiety and hostility), the others being between 1 and 2, that is, there is a tendency towards the borderline disorder. The

detailed analysis of the degree of accentuation of the facets in 425 patients highlights that facets with numeric value between 1 and 1.66 are included in so called "area of accentuation". Thus, the numeric value of the facets higher than 1.66 exceeds the range of the accentuation and is considered as 2, marking the presence of the characteristic trait of the respective disorder.

Starting from the above, it was decided in this study to modify the numerical values limits in the formation of the groups, so that subjects with numerical results of PID facets less than 1.66 would be considered conventionally subjects with accentuated traits of personality disorder.

The distribution of facets and their numerical values, specifically, a value of 1.66, allows the segregation of the examined subjects into three groups:

– Group I-PID: 0-1 – Normal (hereafter, I-N group);

– Group II-PID: 1-1.66 – Accentuated personality (II-AP);

– Group III-PID: 1.66 < – Personality disorder (III-PD).

The 25 facets resulting from the Inventory correspond to the features described in DSM-5 and comprise five domains of the supreme order, as described in Sequence III: Negative Affect, Separation, Antagonism, Disinhibition and Psychoticism.

The hierarchical structure of the PID-5 traces is derived from the 5-level model [10,19], the first level being the global pathology of personality, at level two the general factor can be divided into problems of externalization and of internalization. At level three, the outsourcing factor maintains its structure, and the internalizing factor is divided into two higher order domains – negative affectivity and detachment. At level four, the negative affectivity of detachment maintains its structure, while the externalization is divided into two areas of superior order – antagonism and disinhibition. At level five, the four top-level domains are preserved, and the fifth is psychoticism.

Drawing from the exposed and analyzing the aspect of the 25 facets (personality traits) of PID-5, which fall into five areas of higher order personality: Negative Affection, Antagonism, Disinhibition, Detachment and Psychoticism, and studying the clinical significance of each field in the Session III DSM-5, it becomes possible to divide the domains into 3 groups according to the tendency the individual manifests when a personality domain or another prevails over the conscious and unconscious. This division allows the creation of the study groups as follows:

I group: Internalization: Negative affection + Detachment;

II group: Externalization: Antagonism + Disinhibition;

III group: Psychoticism.

In this study, it was decided to divide the group of patients according to these three groups, this being the second stage of statistical research.

The second stage of the study included the following research methods

Data collection – anamnesis, objective examination, neurological status of patients' observation file, diagnosis in all patients was already confirmed.

Headache intensity assessment via analogue numerical scale (ANS) – is used to measure pain intensity, maximum score of 10 points (0 points – absence of pain, 10 points – the most intensive pain felt by the patient);

The Headache Questionnaire was adapted by the Center of Headache and Autonomic Disorders of the Institute of Neurology and Neurosurgery in 2011. It consists of 18 compartments, which are analyzed together, generating the characteristics of headache: the age of onset of headache, the number of days with pain per month, duration of access, location of pain, activities that amplify the pain, the type of pain, the signs that precede the pain, the trigger factors, headache accompanying symptoms, behavior during access, pain intensity according to the number of days a month with pain, hereditary anamnesis, use of analgesic drugs, the presence or absence of drug abuse, comorbidities, family status.

Respectively, all patients included in the study based on the already confirmed diagnosis were divided into 3 groups:

Group 1 included 48 patients with migraine: 22 patients with episodic migraine and 26 patients with chronic migraine. Diagnosis in headache patients was established according to the 3rd International Classification of Headache Disorders of the International Headache Society ICD-III.

Group 2 included 14 patients with tension headache (10 patients with episodic CTT and 4 patients with chronic CTT).

Group 3 included 66 patients with affective disorders, of whom 30 are only affective disorders, and 36 have rare episodic headaches that account for an important percentage of their general affliction. The diagnosis was established according to the Diagnostic and Statistical Manual of Mental Disorders (5th Edition) (DSM-V).

Statistical methods. The ANOVA (Analysis of Variance with Bonferroni Correction) and the Independent Proportion Method were used to assess the difference between the scores of the questionnaires in different patient groups. For detecting differences between samples, the x^2 (ch² square) index proposed by Helmet and Pearson was used.

Results and discussion

The alternative model of diagnosis of personality disorder states that the scores under the diagnostic criteria (or clinical threshold) do not allow individuals to be qualified as having that disorder. This is useful because it recognizes that there is a potential problem without giving the person the negative label associated with personality disorders. This also prevents a clinician from giving the client complete treatment. A total evaluation by the alternative method measures all the traits associated with personality disorders. Each of the five domains has 3-6 facets that can be examined.

For instance, the antagonisms include six facets: manipulativeness, deceitfulness, grandiosity, attention seeking, callousness and hostility. Any facet that clearly describes the patient, valued by numeric value, is then marked as being present and is then considered clinically important. Facts that have a value in mind are still to be taken into account, thus providing a more comprehensive view of the patient.

"Good" facets appreciated numerically are not taken into account for qualifying the personality disorder. There are specific, strict facets describing each personality disorder, and the presence of those facets determines whether the patient has or does not have personality disorder in the event of schizotypal disorder.

Based on the above, the distribution of patients in 3 study groups according to the distribution of facets and numerical values was based on the fact that the majority of patients whose results of PID do not fall within the notion of "pathological personality", but still have a fairly large number facets with a numerical value of 1.5. They can also induce changes in personality, with a tendency towards pathology, changes that we suppose to change painful headache, as well as affective manifestations, which also require corrections in their therapeutic approach. The comparative characteristic of the socio-demographic data of the patients according to the created groups is presented in tab. 1.

Table 1

Socio-demographic data of the patients

	Group I N	Group II AP	Group III PD
Gender			
Female	49 (38.28%)	31 (24.21%)	6 (4.68%)
Male	27 (21.09%)	12 (9.37%)	5 (3.90%)
Total	76 (59.37%)	43 (33.59%)	9 (7.03%)
Average age (years)	34.08	30.88	36.66
Family status			
Married	48	26	0
Non-married	25	15	2
Divorced	7	1	1
Widowed	2	1	0

Note: Group I N - PID : 0-1; Group II AP - PID: 1-1.66; Group III PD - PID: 1.66 <

The table shows the prevalence of women in AP II and III PD lots, which indicates the higher risk for female sex to develop a personality disorder. Family status does not seem to be of any importance, as a risk factor in the occurrence of personality disorders.

The study of the characteristics of migraine pain and tensional headache depending on the degree of personality disorder is shown in fig. 3.
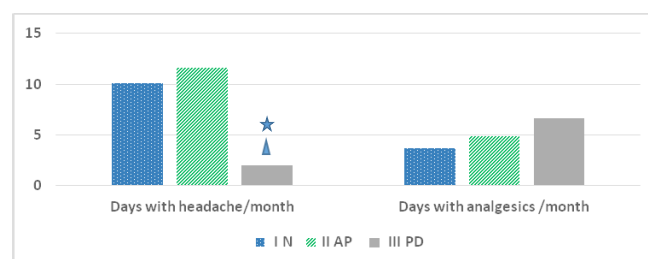

Fig. 3. Numerical values of headache traits according to PID groups (number of days with headache per month, number of days with use of analgesics per month).

Note: P<0.01 ▲ – comparison of groups II and III; ★ – comparison of groups I and III.

Comparison of the headache characteristics between groups made accordingly with scores PID-5 suggests that the use of analgesics is more intense in patients with personality disorders, as well as risk of developing drug abuse is greater (IN group - 3.69 ± 0.63, II AP - 4.88 ± 0.74; III PD - 6.66 ± 1.15). The number of days per month with pain differs significantly between the I-N group, where a lower frequency of headache is recorded than in group II (I-N – 10.12 ± 1.05, II-AP – 11.62 ± 0.95, P <0.01) and a very low frequency is recorded in the 3rd group (I-N – 10.12 ± 1.05, III-PD – 2.00 ± 0.17, P <0.01).
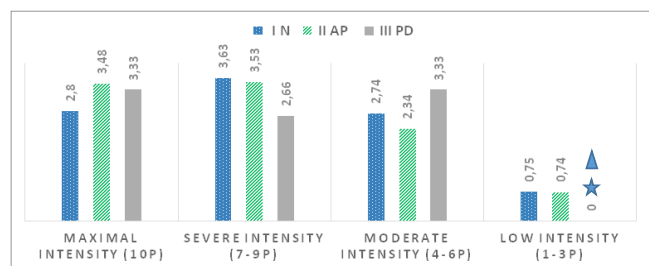
alues of headache traits
(intensity of headache) according to study groups.

Note: P<0.01 ▲ – comparison of groups II and III; ★ – comparison of groups I and III.

The intensity of headache assessed using the headache questionnaire is illustrated in fig. 4, from which the significant changes occur only in low intensity pain, which corresponds to the score 1-3 according to the numerical-analog scale. Thus, between the I-N group (0.75 ± 0.09) and II-AP group (0.74 ± 0.09), P <0.01 and between the I-N group (0.75 ± 0.09) and III-PD (0.00), P <0.01, there is a large statistical difference. Severe pain is more pronounced in patients without personality disorder, and means pain is more felt by patients in the third group [22].

Studying the clinical significance of each domain, according to the DSM -5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, 2013), we divided the 5 domains into 3 groups, and to the tendency of the individual when a domain prevails on the conscious and the unconscious [9]. These groups are:

1. Internalization: Negative affection + Detachment
2. Externalization: Antagonism + Disinhibition
3. Psychoticism

Based on the above, in the second stage of the statistical analysis in this study, all patients were divided into three study groups. The comparative characteristic of the socio-demographic data of the patients according to the created groups in the 2nd stage of study is presented in tab. 2.

The prevalence of women in the Internalization group suggests the hypothesis that women tend towards greater introversion compared to men. In Group II (Externalization), male gender prevails. The average age of 24.71 years in the third group (Psychoticism) proves an early onset of personality disorders.

The comparison of the numerical data of the headache characteristics in the study groups is represented in fig. 5.

Table 2

Socio-demographic data of the patients in study groups

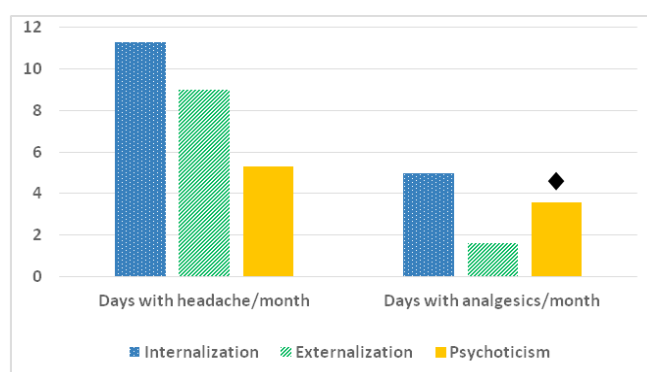|	Group I Internalization	Group II Externalization	Group III Psychoticism
Gender			
Female	73 (57.03%)	11 (8.59%)	5 (3.90%)
Male	21 (16.40%)	16 (12.50%)	2 (1.56%)
Total	94 (73.43%)	27 (21.09%)	7 (5.46%)
Average age (years)	34.28	31.00	24.71
Family status			
Married	59	15	2
Non-marriedi	25	11	4
Divorced	8	0	1
Widowed	2	1	0

Fig. 5. Numerical values of the headache traits in study groups.

Note: P<0.05 ◆ – comparison between groups I and II.

The use of analgesics is more pronounced in the patients of the Internalization group (4.94 ± 0.75), compared to the Externalization group (1.59 ± 0.41), with a statistically significant difference (P <0.05). Similarly, the number of days with pain per month is higher for patients in the Internalization group. Externalization helps reducing the frequency of pain.

The duration of headache attack is higher in patients in the first group (11.25 ± 0.95), in comparison with the third group (2.35 ± 0.22), with a statistically significant difference between them (P <0.05, fig. 6), which confirms the role of inhibition and introversion in the manifestation of the duration of headache [22].
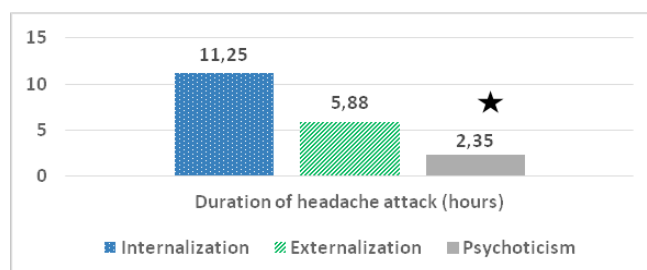

Fig. 6. Numerical values of the duration of the headache attack in study groups.

Note: P<0.05 ★ – comparison between groups I and III

S. Lozovanu et al. Moldovan Medical Journal. December 2018; 61(4):29-35
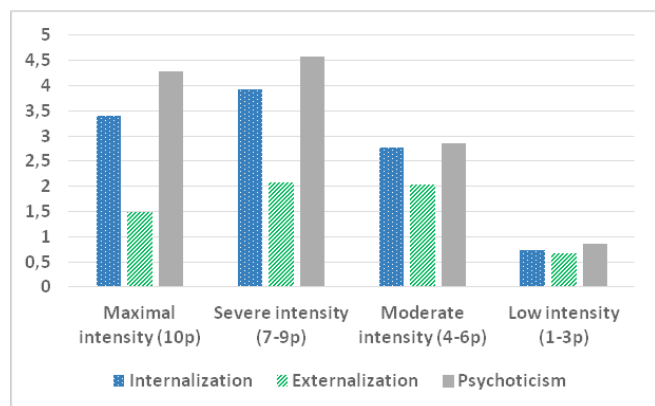
ORIGINAL RESEARCH

Fig. 7. **Numerical values of headache intensity in study groups.**

Multiple researchers argue that the personality can be considered as capable of altering the clinical appearance, the evolution of pain, and the response to therapy. The data obtained are shown in fig. 7, namely, that the pain is more intense in patients with psychoticism (group III) and in the Internalization group. Externalization helps reduce pain intensity.

The statistical analysis of the data on the relation between the 6 types of PD according to the latest DSM-5 edition and the higher order personality domains assembled in the three groups – Internalization, Externalization, and Psychoticism are shown in fig. 8. It was noticed that the narcissistic personality disorder is dominating for Psychoticism (1.44 ± 0.53), also high levels in group III are attested to antisocial disorder (1.19 ± 0.5) and obsessive – compulsive disorder (1.39 ± 0.64), with considerable statistical differences ($P <0.05$) compared to the values in other groups. The borderline disorder is prevalent in Internalization group (1.23 ± 0.94). Externalization manifests itself more in the antisocial and schizotypal disorders [22].
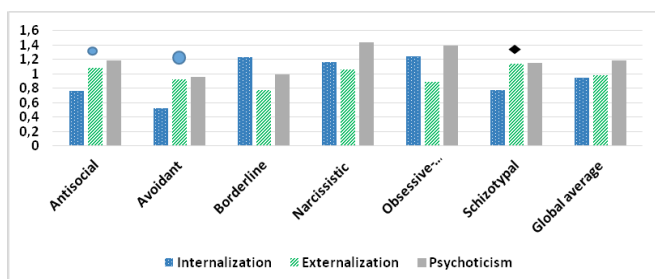

Fig. 8. **Numerical values of personality disorders in study groups.**

Note: P<0.05 ◆ – comparison between group I and II.

P<0.01 ⬤ – comparison between group I and II.

★ – comparison between group I and III.

⬠ – comparison between group I and III.

Conclusions

The numeric values of the facets of PID-5 test were used to separate the examined subjects in three groups (I – Normal, II – Accentuated Personality, III – Personality disor-

der), and this division confirms the correlation between personality disorder and migraine, same idea sustained by bibliographic data. The obtained results provide data about a relationship between personality disorder and clinical profile of the pain.

In conclusion, it can be affirmed that the data obtained according to the division based on the numerical bases of the PID-5 facets, the examined subjects in three groups (I – Normal, II – Accentuated Personality, III – Personality disorder) allow to emphasize first the fact that the risk to develop a personality disorder is higher in women, the same is supported by literature data, women show higher rates of migraine and personality disorder than men, and gender differences influence the perception of pain and the style of coping.

The characteristics of headache are influenced by personality disorders, which is confirmed by the use of more potent analgesics, the number of days with pain per month is less influenced, however, it differs in patients without TP from those with a tendency to disorder, the intensity of pain is greatly influenced within the qualifying "Accentuated personality" on the visual-numeric scale.

The distribution of individuals examined in I – Internalization, II – Externalization, III – Psychoticism, based on the clinical significance analysis of the five areas of higher order personalities, allows to state that female gender has a higher introversion tendency than males, introversion and neurosis is more common among women with migraine; the onset of personality disorders occurs during early youth.

The PID test can make a significant contribution to deciphering the definition of "migraine personality".

References

1. American Psychiatric Association. Changes to the reformulation of personality disorders for DSM-5. 2011 Jun 21 [cited 2018 Aug 18]. Available from: http://www.dsm5.org/ProposedRevisions/Pages/Personalityand PersonalityDisorders.aspx. (http://www.psychiatry.org/practice/dsm/dsm5/online-assessment-measures#Personality)

2. American Psychiatric Association. DSM-5 Clinicians' Personality Trait Rating Form. 2011 [cited 2018 Aug 18]. Available from: http://www.dsm5.org/ProposedRevisions/Pages/PersonalityandPersonalityDisorders.aspx.

3. Anderson J, Snider S, Sellbom M, Krueger R, Hopwood C. A comparison of the DSM-5 Section II and Section III personality disorder structures. Psychiatry Res. 2014;216:363-372.

4. Blumenfeld AM, Varon SF, Wilcox TK, Buse DC, et al. Disability, HRQOL and resource use among chronic and episodic migraineurs: results from the International Burden of Migraine Study (IBMS). Cephalalgia. 2011;31(3)301-15.

5. Boz C, Velioglu S, Ozmenoglu M, et al. Temperament and character profiles of patients with tension-type headache and migraine. Psychiatry Clin Neurosci. 2004;58(5):536-543.

6. Cao M, Zhang S, Wang K, et al. Personality traits in migraine and tension-type headaches: a five-factor model study. Psychopathology. 2002;35(4):254-258.

7. Davis RE, Smitherman TA, Baskin SM. Personality traits, personality disorders, and migraine: a review. Neurol Sci. 2013;34 Suppl 1:S7-S10. doi: 10.1007/s10072-013-1379-8

8. Fève Annaïk. Aspects psychologiques des migraines et des céphalées: repérages neurologiques [Psychological aspects of migraines and headaches]. Revue française de psychosomatique. 2008;2(34):141-150. French.

9. Thimm JC, Jordan S, Bach B. Hierarchical structure and cross-cultural measurement invariance of the Norwegian version of the Personality Inventory for DSM–5. J Pers Assess. 2016;99(2): 204-210.

10. Thimm JC, Jordan S, Bach B. The Personality Inventory for DSM-5 Short Form (PID-5-SF): psychometric properties and association with big five traits and pathological beliefs in a Norwegian population. BMC Psychol. 2016;4:61.

11. Lake A, Saper J, Hamel R. Comprehensive inpatient treatment of refractory chronic daily headache. Headache. 2009;49:555-562.

12. Quilty LC, Ayearst L, Chmielewski M, et al. The psychometric properties of the personality inventory for DSM-5(PID-5) in an APA DSM-5 field trial sample. Assessment. 2013;123(2):321-34.

13. Lipton RB, Bigal ME, Diamond M, et al. Migraine prevalence, disease burden, and the need for preventive therapy. Neurology. 2007;68(5):343-349.

14. Mose LS, Pedersen SS, et al. The role of personality, disability and physical activity in the development of medication-overuse headache: a prospective observational study. J Headache Pain. 2018;19(1):39. doi: 10.1186/s10194-018-0863-1.

15. Marrif HI, et al. Migraine headache: molecular biology of astrocytes connection. Am J Sci Res. 2010;8:68-77.

16. Moldovanu I, Dodick DW, Odobescu S. Cefaleele, durerile faciale si cervicale: diagnostic si tratament [Headaches, facial and cervical pain: diagnosis and treatment]. Chisinau; 2007. p. 41. Romanian.

17. Moldovanu I, Draganova O, Odobescu S, Comendant V, Rotaru L. Exista oare o "personalitate migrenoasa"? Studiu clinico-psihologic si perspectivele de cercetare [Does the migraine personality exist? Clinical psychological study and research perspectives]. [Bull Acad Sci Moldova]. 2015;2(47):153-155. Romanian.

18. Moldovanu I, Odobescu S, Craciun C. Medication overuse in Moldova. Chronic migraine with and without medication overuse: the role of drug phobia and associated factors (according to the data of Headache Centre, Chisinau, the Republic of Moldova). Cephalalgia. 2008;28:1229-1233.

19. Al-Dajani N, Gralnick TM, Bagby RM. A psychometric review of the personality inventory for DSM-5 (PID-5): current status and future directions. J Pers Assess. 2016;98(1):62-81. doi: 10.1080/00223891.

20. Davis RE, Smitherman TA, Baskin SM. Personality traits, personality disorders, and migraine: a review. Neurol Sci. 2013;34 Suppl 1:S7-10.

21. Radat F, Swendsen J. Psychiatric comorbidity in migraine: a review. Cephalalgia 2005;25(3):165-78.

22. Romaniuc I. Tulburarile de personalitate si influenta lor asupra patternului clinic al pacientilor cu migrena si cefalee de tip tensional [Personality disorders and their influence on the clinical pattern of patients with migraine and tensional headache] [thesis]. Chisinau; 2017. Romanian.

23. Smitherman TA, Ward TN. Psychosocial factors of relevance to sex and gender studies in headache. Headache. 2011;51(6):923-931.

24. Speciali JG, Eckeli AL, Dach F. Tension-type headache. Expert Rev Neurother. 2008;8(5):839-853.