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APPLICABILITY OF POLISH ADAPTATION OF MMPI-2 QUESTIONNAIRE IN DIAGNOSIS AND MONITORING OF PSYCHOTHERAPY EFFECTIVENESS OF PATIENTS WITH NEUROTIC AND PERSONALITY DISORDERS

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Summary: Development by the Psychological Test Laboratory of the Polish Psychological Association the first fully standardized version of the questionnaire MMPI-2 has opened the possibility of conducting with its use pioneering research in the clinical context in Polish population of patients with neurotic and personality disorders.

The conducted research has shown that in the majority of patients eligible for treatment for neurotic and personality disorders in measurement obtained at the beginning of therapy the results indicating neurotic symptoms and disturbance of personality functioning are significantly higher than in the healthy population. Polish version of the MMPI-2 proved to be in this respect a useful tool in the diagnosis of neurotic and personality disorders. As a result of group psychotherapy with elements of individual psychotherapy in most patients profound reduction in the level of neurotic symptoms as well as deep positive change in personality functioning have been observed.

Application of the new Polish version of the MMPI-2 proved to be useful in monitoring the psychotherapy process of patients suffering from neurotic disorders and personality disorders, which seems to be particularly important from the point of view of planning the follow-up and multi-center research.

Development of the MMPI-2

The Minnesota Multiphasic Personality Inventory (MMPI) has long been the most popular among all the questionnaire methods of personality testing [1]. It was published for the first time in 1943, as a result of many years of work carried out in the complex of departments at the University of Minnesota by Starke Hathway, PhD and J. Charnley McKinley, MD [2, 3]. In the construction of the first scales of MMPI – clinical sales – the authors used an approach based on empirical key in which the significance of responses to a single test items are treated as unknown; to identify the items differentiating between criterial groups empirical analysis of the items is used [4]. In order to minimize erroneous interpretation of clinical results, resulting from a tendency to falsification and distortion

which often appears in self-report inventories, the researchers also created validity scales. Application of the first version of the test in the diagnostics and numerous scientific studies allowed, in the 60s and 70s, for modifying and improving the psychometric properties of the tool and gradual establishment of adequate standards for the interpretation of the results [5].

Despite the extensive use of the tool in hospitals, outpatient wards and in scientific researches [6–11] various concerns regarding standardization and normalization as well as aspects of language and culture have been reported.

Therefore, in the 1980s works were carried out to prepare the revised standardized version of the questionnaire for the population of the United States. At the same time the tool was adapted to different geographical conditions to ensure adequate opportunity to use and compare the results of the MMPI-2 in the international context. In the modified version various scales were treated as unknowns and their correlates were established. A person obtaining a specific result on a given scale is assigned traits and behaviors that were found in previous studies in other people with similar results on this scale [3]. The number of scales was significantly widened and the existing scales were revised, resulting in, among other things, developing Restructured Clinical (RC) Scales [12]. Further work on the questionnaire resulted in creation of the restructured version of the MMPI-2RF [13] as well as the version for teenagers MMPI-A [14].

Currently, the MMPI-2 is the most common personality test in the world and second after the WAIS-R most commonly used among all the tests [15]. The literature review indicates the existence of more than 2,000 publications prepared with its use, mainly in medical sciences, social sciences, humanities [3, 16–17], and in judicial context [18, 19].

Polish normalization of the MMPI-2

The history of work on adaptation of this tool for the Polish population dates back to the 1950s. Works of Chojnowski, who contributed to the development of the first Polish version of the WISKAD-MMPI [20], as well as the team led by Paluchowski [21] become extremely important in this respect. Studies by Matkowski [1] and Kucharski [22–26] played the leading role in the dissemination of the questionnaire in Poland. At that time, the first Polish scientific publications prepared using the MMPI were published [27].

However, it was only in November 2012 when the Psychological Test Laboratory of the Polish Psychological Association completed the development of fully standardized and normalized to the Polish population version of the MMPI-2 based on international standards and obligations under the license agreement with the Minnesota University Press. Full

procedure involved the development of the Polish language version with the use of back-translation method conducted in the Chair of Psychotherapy, Jagiellonian University Medical College, conducting pilot studies, standardization and validation, as well as adaptation of validity scales [5].

The latest normalized Polish version of the MMPI-2 questionnaire includes validity scales: "Cannot Say", Variable Response Inconsistency scale (VRIN), True Response Inconsistency scale (TRIN), Infrequency scale (F), Infrequency-back scale (Fb), Infrequency-psychopathology scale (Fp), Fake Bad Scale (FBS) and measures of defense — Lie scale (L), Correction scale (K) and Superlative Self-Presentation scale (S); and enables diagnosis of the subject's functioning in more than 100 dimensions, assessed by:

- 10 clinical scales — (Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Masculinity/Femininity (Mf) Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Social Introversion (Si);
- 31 clinical subscales;
- 9 restructured clinical (RC) scales: Demoralization (dem), Somatic Complaints (som), Low Positive Emotions (lpe), Cynicism (cyn), Antisocial Behavior (asb), ideas of persecution (per), Dysfunctional Negative Emotions (dne), Aberrant Experiences (ebx), Hypomanic Activation (hpm);
- Personality Psychopathology Five Scales (PSY-5);
- content scales: Anxiety (ANX), Fears (FRS), Obsessiveness (OBS), Depression (DEP), Health Concerns (HEA), Bizarre Mentation (BIZ), Anger (ANG), Cynicism (CYN), Antisocial Practices (ASP), Type A behavior (TPA), Low Self Esteem (LSE), Social Discomfort (SOD), Family Problems (FAM) Work Interference (WRK), Negative Treatment Indicators (TRT);
- 27 content component scales;
- supplemental scales: Anxiety (A) Repression (R), Ego Strength (Es) Dominance (Do), Social Responsibility (Re), College Maladjustment (Mt), Post-Traumatic Stress Disorder-Keane (PK), Marital Distress (MDS), Hostility (Ho), Over-Controlled Hostility (OH), MacAndrew Alcoholism Scale Revised (MAC-R), Addictions Acknowledgement Scale (AAS), Addictions Potential Scale (APS), Gender Role — Masculine (GM), Gender Role — Feminine (GF) and so-called subtle-obvious scales [3, 5].

First Polish study on the effectiveness of psychotherapy using the MMPI-2 in a population of patients with neurotic and personality disorders

Development of the first fully standardized version of the MMPI-2 questionnaire by the Psychological Test Laboratory of the Polish Psychological Association allowed for conducting pioneer research with its use in Poland in the context of a clinical population of patients treated for neurotic and personality disorders. The inspiration for the project using the MMPI-2 questionnaire were previous studies on the effectiveness of psychotherapy in patients with neurotic and personality disorders conducted by Aleksandrowicz et al. [28–32] and studies on post-traumatic stress disorder (PTSD) and related dysfunctions of personality of victims of political persecution conducted by Rutkowski et al. [27, 33].

Research plan included the introduction of the MMPI-2 to the process of diagnosis and treatment monitoring of patients in the Day Hospital for the Treatment of Neurotic and Behavioral Disorders of the University Hospital in Krakow in the pre-post model from the moment of its full normalization. The research project is based on many years of experience of testing the effectiveness of psychotherapy undertaken in recent years in the Chair of Psychotherapy, Jagiellonian University, among others, by Aleksandrowicz, Sobański, Bierzyński, Stolarska, Mielimąka, Murzyn-Białas, Citkowska-Kisielewska et al. [28–32, 34–36].

A substantive discussion accompanying this research and confrontation with a variety of difficulties, as well as emerging questions and dilemmas on how to conduct the research resulted in the elaboration of the model which analyzes both the level of neurotic symptoms and patients' personality functioning. On the basis of the theories of personality in a functional approach, in the first phase of the research it was decided to analyze the clinical scales, masculinity—femininity scale, ego strength scale, and restructured scales. The results of the study were compared to parallel investigations conducted in the Chair of Psychotherapy, Jagiellonian University, and also to retrospective studies which used Symptom Checklist KO "O" and Neurotic Personality Questionnaire KON-2006 [37, 38].

The study included 82 patients (61 women and 21 men) participating in psychotherapy at the Day Hospital for the Treatment of Neurotic and Behavioral Disorders from September 2013 to April 2014; this accounted for 72% of all patients treated in the Day Hospital at that time (Figure 1).

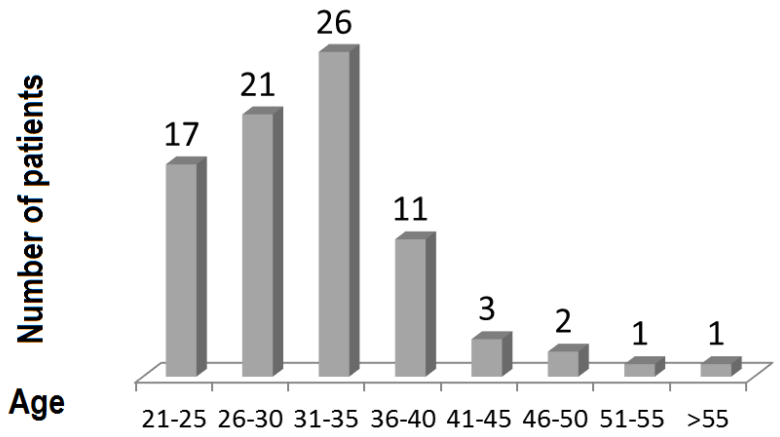


Figure 1. **Age distribution in the study group (n = 82, W = 61, M = 21)**

The remaining 28% of patients were not enrolled due to incomplete tests (21%) or premature discontinuation of treatment (drop-out) — 7% [39, 40] (Figure 2).

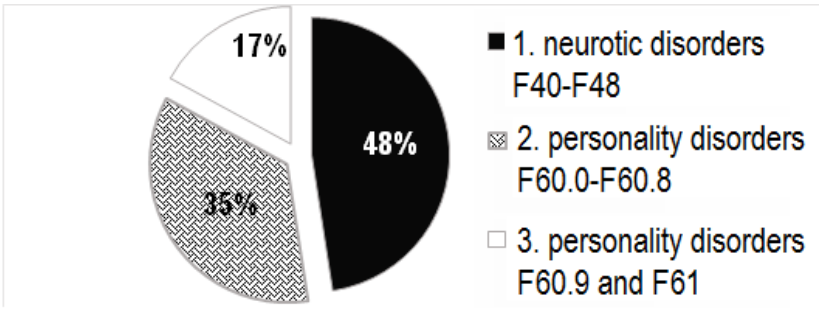


Figure 2. **Diagnoses in the study group (n = 82)**

Patients diagnosed with [41–44] somatic origin of the reported symptoms, organic changes in the CNS, psychotic disorders, active addiction to alcohol or psychoactive substances, and those with high risk of suicide were excluded from the study. Patients who discontinued treatment before its scheduled completion, or did not agree to participate in the study were also excluded [39, 40].

Women comprised 74% of the study group and men — 26%. The mean age was 31.5 years (min. 21, max. 56; standard deviation 6.9). During the treatment qualification procedure, 48% of patients in the study group were diagnosed with neurotic disorders (F40–

F48) as a primary diagnosis, while 52% of the patients were diagnosed with personality disorders F6 (F60, F61), according to the ICD-10 diagnostic criteria [45].

Each person included in the study group participated in intensive psychodynamic group psychotherapy [37–41]. The duration of treatment was most commonly 12 weeks. In substantively justified cases the therapy was extended up to 14 weeks or shortened (e.g., random events which prevented a patient from completing the full 12-week treatment). A detailed description of psychotherapy is presented in other publications [37–40, 46–48].

The results of research conducted with the use of the MMPI-2 questionnaire have been published in the journal Psychiatria Polska [39, 40] and presented at numerous national and international conferences. They are collectively presented in Table 1. They have also become the subject of doctoral dissertations [39, 40, 47]. At the same time descriptions of further analysis and the study follow-up are being prepared for publication.

Table 1.**The results of Student's t-test for dependent groups and the effect size expressed using Cohen's d coefficient (pre-post model)**

MMPI-2 SCALES	t	p	Cohen's d
Hypochondriasis (Hs)	4.47	**<0.01**	0.99
Depression (D)	5.35	**<0.01**	1.18
Hysteria (Hy)	3.55	**<0.01**	0.78
Psychopatic Deviate (Pd)	2.01	**<0.05**	0.44
Paranoia (Pa)	2.74	**<0.01**	0.60
Psychasthenia (Pt)	5.81	**<0.01**	1.29
Schizophrenia (Sc)	3.52	**<0.01**	0.78
Hypomania (Ma)	-2.95	**<0.01**	0.65
Social Introversion (Si)	5.49	**<0.01**	1.22
Masculinity/Femininity (M/F)	-0.47	0.63	0.10
Ego Strength (ES)	-5.66	**<0.01**	1.24

Discussion

Analysis of data from retrospective studies conducted with the use of the questionnaire KON-2006 and KO "O" [37, 38], as well as those using the MMPI-2 questionnaire is an important contribution to the research on the effectiveness of psychotherapy. The use of the MMPI-2 questionnaire allowed us to supplement the observation indicating symptomatic improvement and improvement in terms of personality dysfunctions disclosed with the use of KO "O" and KON-2006 with information about significant positive changes in terms of self-esteem, wider repertoire of coping mechanisms in stressful situations, better ability to adapt to new situations and life roles.

The conducted research has shown that in the majority of patients eligible for treatment for neurotic and personality disorders the results concerning neurotic symptoms and disturbance of personality functioning obtained at the beginning of therapy are significantly higher than the results obtained in the healthy population. In this respect the Polish version of the MMPI-2 questionnaire proved to be a useful tool in the diagnostics of neurotic and personality disorders.

In a significant number of patients change in personality functioning, as measured using the MMPI-2 questionnaire, is manifested by less preoccupation with health problems, greater maturity, more adequate assessment of their abilities, less hypersensitivity, suspiciousness, and emotional lability, reduced tendency to ruminate and experiencing excessive feeling of guilt, and significantly lower level of tension, anxiety and depressiveness. Favorable changes in personality functioning can translate to a greater ability to experience intimacy, establishing interpersonal relationships, sense of the impact on own life situation and draw satisfaction out of it. It has also been found that as a result of group psychotherapy with elements of individual psychotherapy conducted in an integrative approach with a predominance of psychodynamic approaches, most patients show an increase in ego strength. This indicates that as a result of treatment patients develop much better ability of general psychological adaptation and wider repertoire of mechanisms enabling efficient coping. The use of MMPI-2 questionnaire also allows for the conclusion that the frequency of recovery from symptoms of neurotic disorders and disturbance of personality functioning did not differ significantly between men and women. However, female patients often function in the traditional roles of women, and male patients – in opposition to the traditional male roles (although still in the area of results which is not subject to unequivocal interpretation) both before and after treatment.

The results of research conducted with the use of the new, fully adapted to the Polish population version of the MMPI-2 questionnaire, are a valuable contribution to the achievements of research on the effectiveness of psychotherapy. They point to the possibility of in-depth, multi-area analysis of changes in personality functioning in the course of psychotherapy in terms of reducing the level of pathological behavior and experiencing (as indicated by the clinical scales used in this study) as well as in experiencing themselves in family and social roles (results confirmed by a change in the Masculinity/Femininity scale), self-esteem, effectiveness (Ego Strength scale), and many others. On one hand, the obtained results are consistent with studies conducted with the use of other tools (e.g., symptom checklists, Neurotic Personality Questionnaire KON, STAI) in the center over the past years

[42–44, 48] – Figure 3–6, on the other hand they open a new area for in-depth exploration of changes occurring as a result of psychotherapy, not only in terms of symptoms subjectively assessed by patients as direct nuisance (e.g., somatization symptoms, anxiety symptoms), but also in the context of family relationships, role satisfaction, sense of efficacy, available resources, and many others.

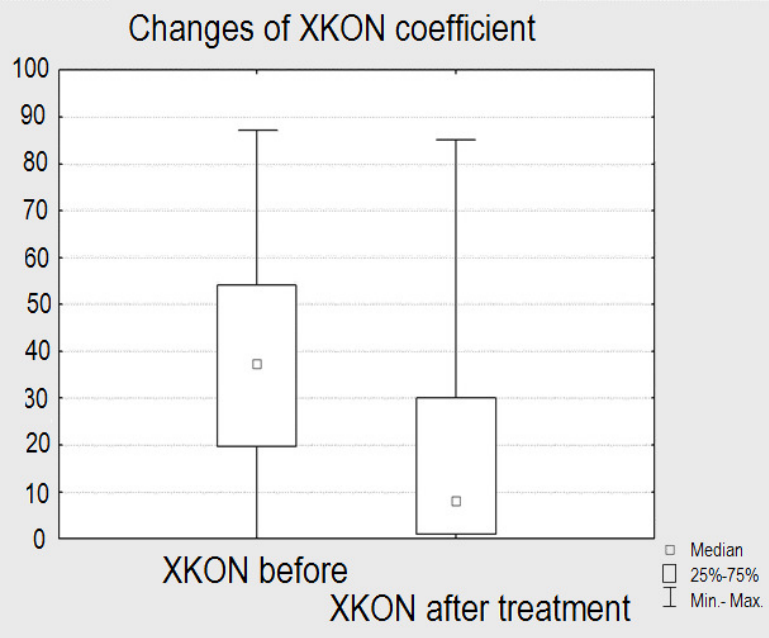


Figure 3. **Results of studies with the use of KON-2006; years 2004–2009; 690 patients: 473 women and 217 men [38]**

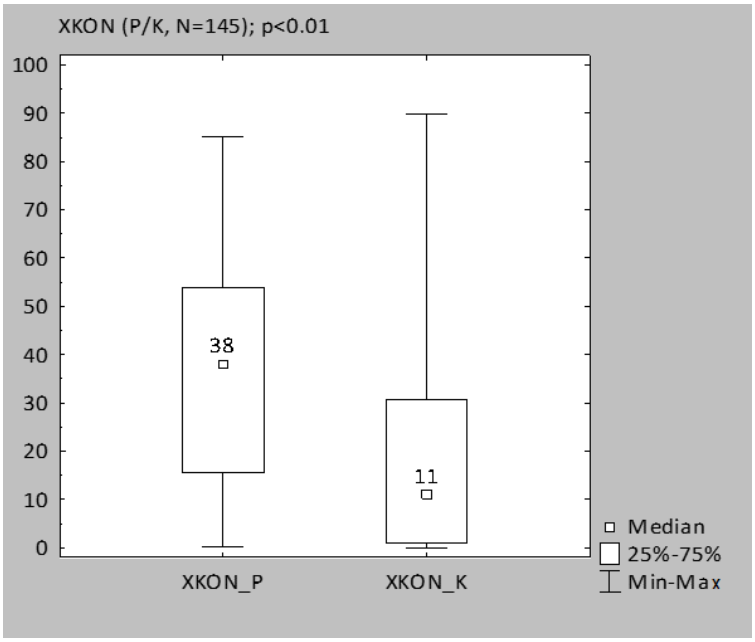


Figure 4. **Changes in severity of neurotic personality traits in the course of psychotherapy, measured using KON-2006, years 2009–2011, 145 patients: 98 women and 47 men [37]**

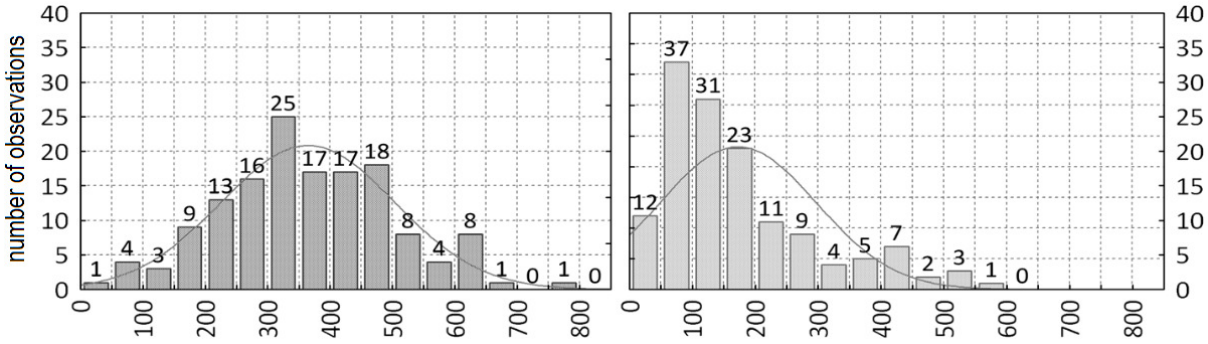
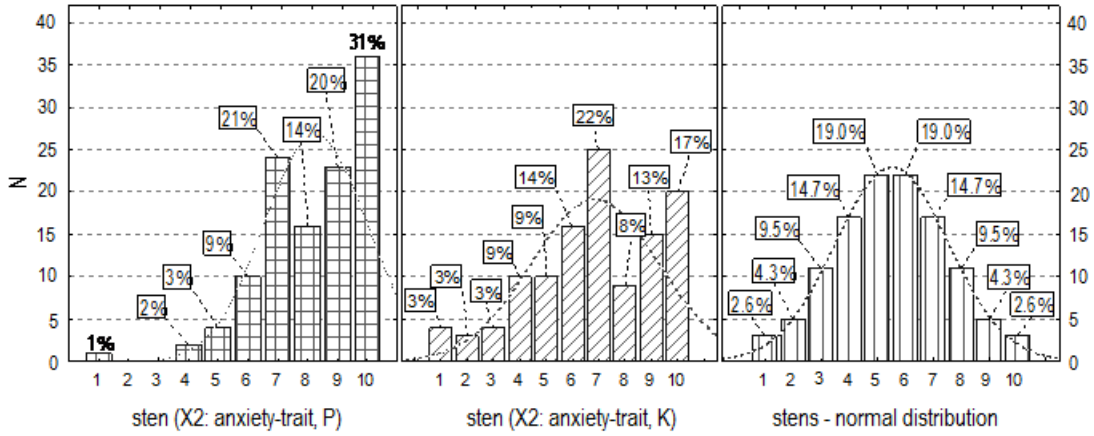


Figure 5. **Changes in severity of neurotic symptoms in the course of psychotherapy, measured using Symptom Checklist KO "O", years 2009–2011; 145 patients: 98 women and 47 men [46]**



P – beginning of treatment, K – end of treatment

Figure 6. **Changes in severity of trait anxiety in the course of psychotherapy; measured using STAI; years 2014–2015, 116 patients: 81 women and 35 men [37]**

Analysis of the available foreign literature, indicating the wide use of the MMPI-2 questionnaire is still scarce in the reports concerning changes in personality functioning obtained as a result of psychotherapy [49–53], which is an additional prerequisite for continued research in this area. What is more important, the ongoing research in longer perspective allow for the assessment of the sustainability of the achieved changes. Wider discussion of the results in relation to the available Polish and international literature, limitations of the studies as well as description of further research plans are included in other publications of the authors [among others 37–40, 47].

Recapitulation

In the majority of patients enrolled for the treatment for neurotic and personality disorders, the results concerning neurotic symptoms and disturbance of personality functioning obtained at the beginning of therapy are significantly higher than the results obtained in the healthy population. As a result of group psychotherapy with elements of individual psychotherapy in most patients profound reduction in the level of neurotic symptoms as well as deep positive change in personality functioning have been observed. In most patients, an increase in ego strength as a result of psychotherapy has also been observed. The incidence of recovery from symptoms of neurotic disorder and disturbance of personality functioning is not significantly different between men and women. Application of the new Polish version of the Minnesota Multiphasic Personality Inventory proved to be useful in the diagnostics and monitoring of the process of psychotherapy of patients suffering from neurotic and personality disorders, which seems to be particularly important from the point of view of planning follow-up studies and multi-center research. The conducted research also allowed us to confirm that short-term intensive group psychotherapy is effective, worthy of recommendation method of treatment of neurotic disorders and selected personality disorders in both women and men. In most patients this method results in multi-area profound positive change in personality functioning.

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