

## **Changes in personality functioning as a result of group psychotherapy with elements of individual psychotherapy in persons with neurotic and personality disorders – MMPI-2**

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### **Summary**

**Aim.** The study of group psychotherapy influence on the personality functioning of patients on treatment for neurotic disorders and selected personality disorders (F4–F6 under ICD-10).

**Methods.** The study concerned 82 patients (61 women and 21 men) who underwent intensive short-term group psychotherapy in a day ward. A comprehensive assessment of the patients' personality functioning was carried out at the outset and the end of the psychotherapy utilising the MMPI-2 questionnaire.

**Results.** At the treatment outset the majority of the study patients demonstrated a considerable level of disorders in five MMPI-2 clinical scales (Depression, Hysteria, Psychopathic Deviate, Psychastenia, Schizophrenia) and moderate pathology in Hypochondria. In the Mania scale most patients obtained results comparable to the healthy population when the treatment commenced. Having undergone the psychotherapy treatment, the majority of the examined were observed to demonstrate positive changes in those areas of personality functioning which were classified as severe or moderate pathology.

**Conclusions.** Short-term intensive comprehensive group psychotherapy with elements of individual psychotherapy leads to desirable changes in personality functioning.

**Key words:** psychotherapy effectiveness, MMPI-2, personality

## Introduction

The year 2014 witnesses 100 years of psychotherapy treatment in Poland [1]. One of the forerunners in psychotherapy efficacy research was Snyder [2] who posed the key question: “Does psychotherapy work?” and opened the substantial and clinical dispute on psychotherapy efficacy [3–8]. The dispute has lasted up to the present day.

The first systematic study on psychotherapy efficacy, burdened with Eysenck’s error (concluding about lack of effectiveness of psychotherapy based on false data), was conducted in the sixties of the 20<sup>th</sup> century [9]. It was followed by a period of randomised and controlled studies of primarily behavioural and cognitive therapies. That led to the belief which was prevalent for many decades that the two approaches demonstrate the highest efficacy. The belief was proven not to be entirely substantiated at a later time [10–13]. The first conference on the efficacy of psychotherapeutic interactions was organised in Trier in 1981 [14].

The first Polish study on the efficacy of psychotherapy was carried out in Warsaw at the Psychiatry and Neurology Institute as well as in Kraków at the Regional Neurosis Treatment Centre, the Psychotherapy Department of the Jagiellonian University Medical College and the Psychiatry Department of the Jagiellonian University Medical College. Initially, the researchers focussed primarily on symptom changes which were assessed with symptomatic questionnaires. It was shortly followed by the pioneer study in Poland on the changes in personality functioning as a consequence of group psychotherapy with the use of R. B. Cattell’s 16 PF personality inventory [5–7, 15–17].

At that time Howard and Mahoney [18, 19] conducted research on a psychotherapy process and its efficacy in the USA. Lambert, Burlingame, Hansen et al. [20] as well as many other researchers continued the study with the primary use of symptomatic inventories (e.g. SCL-90, OQ-45) [20–21]. No “gold standard” as a diagnostic tool or a set of tools in the research on psychotherapy efficacy has ever been proposed. However, the results of the studies indicate clearly that the assessment should not be limited to symptoms only but it should consider the assessment of personality functioning as well. To achieve this, suitable personality assessment questionnaires can be used. Time-consuming as their use might be, they allow a more comprehensive assessment of personality functioning in many aspects to be performed. At present it might be worth mentioning some of the most significant tools which are most commonly used in the research: Cattell’s 16 PF, EPQ, TCI, NEO-FFI, NEO-PI-R and MMPI.

The initial stage of a psychotherapy efficacy study involves the choice of measurement tools/methods which should be relatively independent of a theoretical school/approach and suitable for making comparisons with researchers from different countries (multilingual versions). It applies to both types of studies: the first one being a study conducted under closely controlled conditions (efficacy, RCT – randomized controlled trial) that would meet the EBM (evidence based medicine) requirements and allow a meta-analysis and its introduction to databases such as Cochrane. The second one being carried out in a day-to-day clinical practice (effectiveness).

Today researchers still adopt various criteria and tools while analysing therapy efficacy and one of the commonly approved measurements of efficacy is the effect size – ES. It is calculated by means of various methodologies and mathematical formulae but in any scenario it serves its purpose in comparing results between research centres and therapies including those which utilise different measurement tools. If applied to medical and psychological research, the ES value of 0.8 is interpreted by Cohen as highly efficient, 0.5 as a moderate one with 0.2 being classified as low [28].

The first comprehensive meta-analysis of psychotherapy efficacy was carried out in 1980 and it comprised of 475 studies conducted predominantly in Europe and the USA. The effect size of 0.6–1.1 for neurotic and personality disorder patients was observed. The value was established in comparison to control group patients who did not undergo treatment [29, 31]. Subsequent comprehensive meta-analyses corroborated the result and undermined the infamous Eysenck's claim that there is no evidence for psychotherapy to have a positive impact on a patients' life [9]. Lipsey and Wilson [32] juxtaposed 18 meta-analyses on psychotherapy efficacy results and calculated the median effect size at 0.75 based on the results of all the studies included in the meta-analyses. The researches also reviewed 23 meta-analyses of cognitive-behavioural psychotherapy efficacy in personality disorders and its average ES value was established as  $ES = 0.62$ . Similar values of ES were observed in other meta-analyses carried out by Robinson, Berman and Neimeyer (37 studies on the efficacy of depressive disorder treatment,  $ES = 0.73$ ) [33], Abbass et al. (12 studies on psychodynamic psychotherapy efficacy,  $ES = 0.97$ ) [34], Messer and Abbass (comparison of 7 studies on psychodynamic psychotherapy efficacy in positive personality changes,  $ES = 0.96$ ) [35], de Maat et al. (10 studies on long-term psychodynamic psychotherapy, pre- and post-model,  $E = 0.78$ ) [36]. A more comprehensive meta-analysis by Abbass et al., published in Cochrane database, utilised strict methodological criteria and involved 23 randomised groups of 1,431 anxiety and personality disorder patients who were treated with short-term psychodynamic psychotherapy (below 40 hours) and control groups patients and  $ES = 0.97$  in symptom reduction was observed. Curiously enough, the ES value increased up to 1.51 in the follow-up study (nine months after the therapy) [36]. Congruent results were reported by other meta-analyses [31, 37–39].

That can be compared with comprehensive meta-analyses of pharmacotherapy efficacy studies in which the efficacy of pharmacology treatment in neurotic and personality disorders was 0.17 (Cochrane systematic review [40, 41]). Considering the numerous differences between the studies included in the meta-analyses, the obtained results may not be interpreted as conclusive evidence for higher psychotherapy efficacy. However, they let psychotherapy be regarded as a significant method employed in the treatment of mental disorders, especially neurotic and personality ones [42–45].

Currently studies on psychotherapy efficacy with the use of various tools both psychometric ones and physiological indicators are carried out (initiated by Jung [46] (galvanometer)) and carried on by Luborsky [47] and Leder [48]. Research on brain

function (f-MRI), neurobiological, endocrinological or cell markers is gaining more popularity with epigenetic research becoming a crucial domain of the future [49].

Although MMPI and its usability in a widely understood clinical and scientific application are commonly known [52–55], scientific publications on the research of changes in personality functioning as a result of psychotherapy seem scarce. In Poland such literature with reference to research on psychotherapy efficacy (in particular group therapy) in large groups patients is virtually non-existent.

### **Aim of the study**

1. Analysis of group psychotherapy impact on personality functioning in patients undergoing treatment for neurotic disorders and selected personality disorders.
2. Assessment of group psychotherapy efficacy: analysis of changes in a personality profile and symptom severity in patients treated for neurotic and personality disorders with psychotherapy.

### **Study hypotheses**

1. As a result of group psychotherapy with elements of individual psychotherapy a change in a personality structure of persons undergoing treatment for neurotic disorders (F40–F48) and personality disorders (F60 and F61) is observed.
2. In the population of persons with neurotic and personality disorders the severity of personality traits selected from the entire group that was measured is considerably higher if compared with the population of healthy persons.
3. The severity of patients' personality traits at the end of psychotherapy decreases to the level observed in healthy persons.

## **Materials and Methods**

### **Study Group**

82 patients (61 females and 21 males) participated in the study. They attended psychotherapy in a day ward of neurotic and behavioural disorder treatment between September 2013 and April 2014. The group constituted 72% of all the patients receiving treatment at the ward at that time. The remaining 28% were not included in the study since they did not fill in the tests completely (21%) or prematurely ended the treatment (drop-out) – 7%.

The criteria the patients had to meet to be included in the study group were the diagnosis of a disorder or disorders in a patient from the range of F4 or F6 (F60, F61) under diagnostic classification criteria ICD-10 [56] and the duration of treatment varying from 10 to 14 weeks.

The excluding criteria were: a lack of qualification for treatment (the recognition of: a somatic background for patient's symptoms, CNS organic changes, somatic dis-

orders), finishing treatment before its scheduled end or a lack of consent to participate in the study.

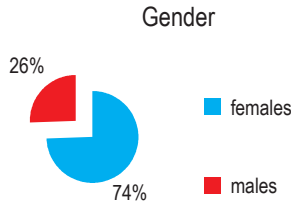


Figure 1. Gender distribution in the studied group

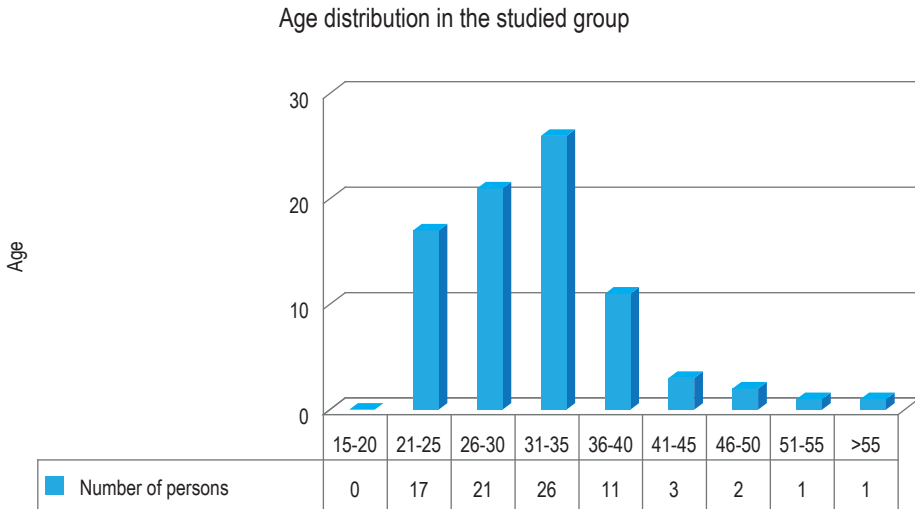


Figure 2. Age distribution in the studied group

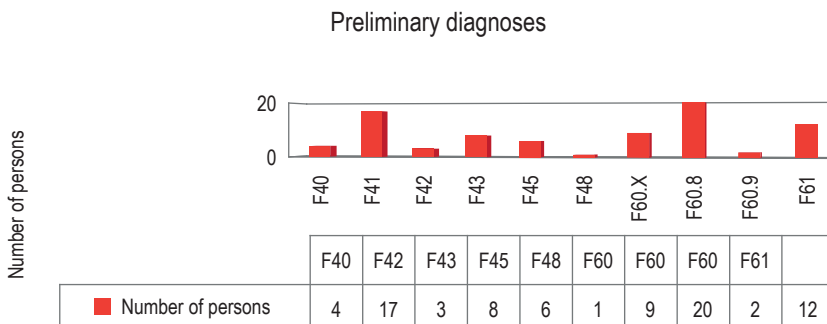


Figure 3. Preliminary diagnoses in the studied group.

At the stage of qualification for the therapy each examined person had two consultations with a psychiatrist and one with a psychologist [57]. The data gathered during the consultations complemented with the results of diagnostic tests (Symptom Checklist "O" [58], Neurotic Personality Questionnaire KON-2006 [24], MMPI-2 questionnaire [52]) constituted the basis for diagnosing disorders under the ICD-10 classification criteria [56].

Women comprised 74% of the examined group (61 persons), whereas the percentage of men was 26% (21 persons). The mean age of the examined persons was 31.5 (21 being the youngest, 56 the oldest and the standard deviation 6.9). At the diagnosis stage 78% of the study group age ranged from 21 to 35 years old with 11 persons (14.4%) aged 36–40, three persons of 41–45, two patients of 46–50 and two above 50 (Figure 1 and 2).

During the qualification for treatment procedure 48% of the study group were diagnosed with neurotic disorders (F40–F48) as a primary diagnosis: F41 (other anxiety disorders) – 17 persons, F43 (reaction to severe stress and adjustment disorders) – 8 persons, F45 (somatoform disorders) – 6 persons, F40 (phobic anxiety disorders) – 4 persons, F42 (obsessive-compulsive disorders) – 3 persons, F48 (other neurotic disorders) – 1 person. Personality disorders were diagnosed in 52% of the examined persons: 20 persons were diagnosed with other personality disorders (F60.8), 12 persons had mixed and other personality disorders (F61) and specific personality disorders were diagnosed in nine persons (F60.0–F60.7). Finally two persons were diagnosed with personality disorders, unspecified (F60.9) (Figure 3).

### Characteristics of the applied psychotherapy

Each person who joined the examined group participated in intensive group psychotherapy. The therapeutic programme involved on a weekly basis:

- groups before midday (groups 1, 2, 3): 15 sessions of group psychotherapy (3x45 minutes daily; 675 minutes weekly), one session of individual psychotherapy (45 minutes), five relaxation sessions (1x15 minutes daily) and one ward community meeting (usually up to 60 minutes); the total number of hours: approximately 171.
- groups after midday (groups 4, 5, 6): six sessions of a group psychotherapy (2x60 minutes daily three times a week; 360 minutes), one session of individual psychotherapy (45 minutes), two optional psychotherapy sessions (2x120 minutes) which involved various techniques (psychodrama, pantomime, music therapy, visualisation techniques e.g. guided affective imagery, drawing, collage etc.); the total number of hours: approximately 129.

60% of patients who participated in the study received treatment before midday, whereas the remaining 40% had afternoon sessions. The group allocation whether a person would attend a morning or afternoon session was based on the data received from the qualification procedure in consultation with the patient and with consideration to their life situation. The patients were allocated to specific groups with the recom-

mended treatment mode (before or after midday) on the basis of the patients' treatment waiting list (no diagnosis-based selection occurred).

Each of the six therapeutic groups that most of the time worked concurrently had 8–10 patients (semi-open groups). Occasionally the numbers were higher (up to 11 persons). The length of treatment was most frequently 12 weeks. In substantively justified cases the therapy was extended up to 14 weeks (five persons in the study) or shortened (random events which prevented a patient from completing the 12-week treatment) – one person in the study.

The elements of work adopted by each therapist in the treatment of the study participants were the induction of transference processes through transference avoidance, transference interpretation, resistance work and its interpretation and the use of other therapeutic interventions: stimulations to clarification exploration, confrontation, interpretation together with the analysis of a symbolic meaning and the function of reported symptoms. A more detailed report on the psychotherapy carried out at the ward could be found in the works of Mazgaj, Stolarska and Mielimąka [59, 60].

Therefore, the psychotherapy (both group and individual one) was carried out in the stream which integrated the elements of psychodynamic, cognitive and behavioural theories. It also considered the “setting” observance (participation in all sessions and punctuality), keeping the information confidential and abiding by other rules under the ward regulations.

All the patients treated in the ward were subject to a continuous review of the therapy effects: every week symptom severity was measured with the use of the personal questionnaire KO“O” and in the group psychotherapy two control meetings to discuss treatment outcomes were carried out (halfway through and at the end of the ward stay).

Personality functioning was assessed with the MMPI-2 questionnaire. It is a tool that was created at the turn of the thirties and forties of the 20th century and has been constantly developed and extended with new assessment aspects of personality functioning (scales: MMPI – 1939; MMPI-2 – 1989; MMPI-A – 2003; MMPI-2-RF – 2008). The Polish version was prepared by the Psychological Test Laboratory in 2012 [52].

Clinical scales in the Polish version of MMPI-2 are identical with the original ones. Interpretive levels referring to various clinical scales are based on the synthesis of conclusions from numerous different studies and are presented as general guidelines. The highest levels of results in the clinical scales are related to the most serious and pathological symptoms and behaviours. Less increased results generally indicate less severe symptoms and problems as well as particular personality traits. A few studies [52] determined that low results in the clinical scales demonstrate a better general adjustment but they are related neither to positive nor negative specific traits of a value that each of the clinical scale is supposed to measure. With the exception of scale 0 (Social Introversion) and 5 (Masculinity-Femininity) – persons who score low in these scales demonstrate the opposite traits to those ones who score high values.

The indicator of reliability gained from the normalisation sample estimated by both a test-retest method and the Cronbach's alpha coefficient when compared to the

data published in an American textbook adopts similar or higher values for numerous scales (0.7–0.9). The Polish validation study was conducted on persons of different clinical groups [52].

The framework of the study involved the comparison of the patients' treatment results at the outset and the end of the therapy with the consideration of control scale analysis (all profiles gained were correct and therefore were subject to interpretation), ten clinical scales and their subscales (31), Ego Strength scale, nine restructured clinical scales and eleven selected scales of content and additional ones. The results obtained from patients in the studied group were compared with the norms set in the standardization carried out between June and November 2009, in a group of 1,174 people aged 18–69 years (586 men, 588 women) by the Psychological Test Laboratory [52].

As the range of the gathered analyses and data is extensive, for the purpose of this publication the results obtained for the following clinical scales were presented: Hypochondria (Hs), Depression (D), Hysteria (Hy), Psychopathic Deviate (Pd), Masculinity/Femininity (Mf), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia Sc, Hypomania (Ma), Social Introversion (Si). The results of other analyses will constitute the content of further publications.

The interpretation of sten scores for the clinical scales in the patients treated for mental disorders is illustrated in Table 1 (except for scale 5 Masculinity/Femininity which is interpreted in a slightly different manner – see Table 2 and 3) [52].

Table 1. **Interpretive options for clinical scales**

(> 75)	Very high
(65–74)	High
(55–64)	Moderate
(45–54)	Medium (not interpreted)
(< 45)	Low (not interpreted)

Table 2. **Interpretive options for MF scale**

High (> 65)	Lack of traditional masculine/feminine behaviour; possible sexual conflict
Medium (45–64)	Not interpreted
Low (< 45)	Traditional masculine/feminine behaviour

The analysis was carried out with STATISTICA 11 licensed package. The result distribution was compared with Kolmogorov-Smirnov Test and the Chi-Squared Test. The significance of the differences was verified against the Student's t-test for paired samples and a non-parametric equivalent – Wilcoxon test (for distributions incongruent with the standard one). In statistical analyses and conclusions the alpha significance level = 0.05 was adopted. The effect size was calculated with the Cohen's d coefficient.



## Results

Table 3, 4, and 8 as well as Figure 4 show the results for clinical scales of the entire examined group. Table 5 and 6 illustrate the results with the consideration of gender division.

Table 3. Analysis of clinical scales before and after therapy for the entire examined group

CLINICAL SCALES	PRE-TREATMENT MEAN	POST-TREATMENT MEAN	PRE-TREATMENT SD	POST-TREATMENT SD	DIFFERENCE	t/z	p
Hs	59	54	9.8	9.7	5	4.47	< 0.01
D	65	57	10.4	11.9	8	5.35	< 0.01
Hy	64	60	10.5	10.1	4	3.55	< 0.01
Pd	61	58	9.7	9.7	3	2.01	< 0.05
Pa	57	55	8.4	8.2	2	2.74	< 0.01
Pt	65	59	8.6	9.6	6	5.81	< 0.01
Sc	60	57	9.3	10.8	3	3.52	< 0.01
Ma	51	53	10.2	10.7	2	-2.95	< 0.01
Si	59	53	11.2	11.9	6	5.49	< 0.01
MF	48	49	13.3	12.2	1	-0.47	0.63

Level of significance  $p < 0.05$

Pre/Post treatment – the results of measurements carried out at the beginning (PRE) and after completion (POST) of treatment.

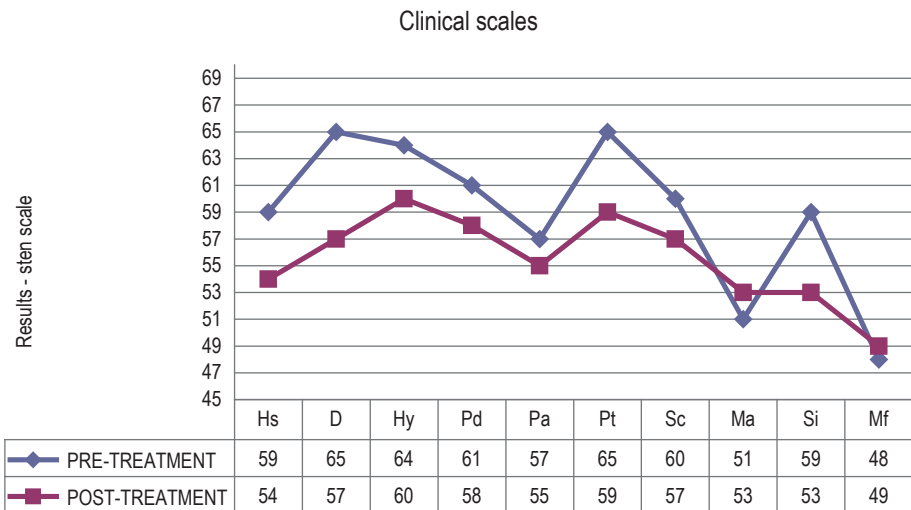


Figure 4. Mean values of measurement results before (PRE-TREATMENT) and after (POST-TREATMENT) therapy in MMPI-2 clinical scales

**Table 4. Percentage of people in the studied group located in particular ranges of clinical scales at the beginning of treatment**

Clinical scales	High ( $\geq 65$ )	Moderate (55–64)	H+M*	Mean and low ( $\leq 54$ )	Total
Hypochondriasis (Hs)	30.4%	41.4%	71.8%	28.2%	100%
Depression (D)	52.4%	32.9%	85.3%	14.7%	100%
Hysteria (Hy)	51.2%	30.4%	81.6%	18.4%	100%
Psychopathic Deviate (Pd)	45.1%	29.2%	74.3%	25.7%	100%
Paranoia (Pa)	20.7%	35.3%	56.0%	44.0%	100%
Psychasthenia (Pt)	53.6%	36.5%	90.1%	9.9%	100%
Schizophrenia (Sc)	36.5%	35.3%	71.8%	28.2%	100%
Hypomania (Ma)	10.9%	20.7%	31.6%	68.4%	100%
Social Introversion (Si)	31.7%	29.2%	60.9%	39.1%	100%

\* H+M (High + Moderate): percent of persons in the studied group, in whom values of clinical scales, measured at the beginning of treatment, indicated disorders in personality functioning.

The analysis of the initial results in the study group patients within the clinical scale range demonstrated (Table 4) that significantly higher sten scores if compared to characteristic values of the healthy population (under Psychological Test Laboratory standards [54]) were achieved by: 71.8% patients in Hypochondria (41.4% moderate level, 30.4% high level), 85.3% in Depression (32.9% moderate level, 52.4% high level), 81.6% in Hysteria (30.4% and 51.2% respectively), 74.3% in Psychopathic Deviates (29.2%; 45.1%), 56% in Paranoia (35.3%; 20.7%), 90.1% in Psychasthenia (36.5%; 53.6%), 71.8% in Schizophrenia (35.3%; 36.5%), 31.6% in Hypomania (20.7%; 10.9%), 60.9% in Social Introversion (29.2% moderate level and 31.7% high level). In as many as five clinical scales (Depression, Hysteria, Psychopathic Deviates, Psychasthenia, Schizophrenia) the results of most patients were placed in the high range at the stage of qualification for treatment. That indicated a deep level of psychopathology, whereas in Hypochondria the majority of the results were placed within the level indicating a moderate pathology range. Mania was the only scale in which most patients (68%) scored the results similar to the ones in the healthy population. The Masculinity/Femininity results were in the range not subject to interpretation.

The majority of the examined group scored higher in Hypochondria levels than the healthy population which can be explained by a more frequent occurrence of somatic complaints, discontentment, cynical approach in the evaluation of the world and self-evaluation, pessimism, excessive demands, tendency to exaltation and an attitude which can be classified as immaturity. High results in sten scores which signify major psychopathology in the Depression scale of the patients starting the treatment can be manifested by discontentment with their life situation, the tendency to withdraw, a limited range of interests and dysphoria. The considerably increased sten scores in

Hysteria suggest that the patients at the outset of the treatment tended to deny reality and be egocentric as well as had a higher inclination to be influenced and to “cling” than the healthy population [52]. The increased results in the Psychopathic Deviate scale are manifested by the examined patients’ greater difficulty in interpersonal relation functioning both with family and professional ones, the tendency to less conventional conduct and higher impulsiveness if compared to healthy persons. The Paranoia scale result analysis suggests consideration of greater distrust, the tendency to hold grudge, inadequate caution and patients’ oversensitivity in the diagnosis and treatment. The results in high ranges of Psychasthenia occurring in the patients at the outset of the treatment point out a considerable higher level of anxiety, tension, tiredness and exhaustion and the tendency to insomnia and guilt. When considering the results in the Schizophrenia scale, a limited interest in others and the accompanying feeling of a lack of adjustment in social situations together with uncertainty in the majority of the examined group can be concluded. The results in the Social Introversion show a higher tendency to be shy and timid and demonstrate introvert behaviour when compared to healthy individuals [52].

Most patients starting the treatment obtained the results in the Mania scale that corresponded to the results exemplary of healthy individuals. Therefore, they are not subject to interpretation. Similarly, the median sten score in the Masculinity/Femininity scale of the examined group turned out to be congruent with the score in the healthy population (it indicates neither the tendency to function in traditional masculine/feminine behaviour nor any major conflict in the sexuality field). This scale interpretation was slightly modified by the analysis of the group when considering the gender factor (Table 5 and 6).

The statistical analysis of the patients’ results conducted at the outset of the treatment and then compared with the ones scored at end of the treatment demonstrated significant statistical differences in all eight clinical scales which initially were within pathology level (moderate or high). In the two scales with the initial high sten scores of Depression and Psychasthenia, which indicated a high level of pathology, the mean value of the measurements carried out at the end of the treatment decreased to a moderate level. That signifies a major change both in statistical (in sequence:  $t = 5.35$ ,  $p < 0.01$ ;  $t = 5.82$ ,  $p < 0.01$ ) and clinical aspects (see Table 3). A clinically significant development was also observed in the scales of Hypochondria and Social Introversion in which the moderate level results at the outset of the treatment decreased to the levels typical of the healthy population (in sequence  $t = 3.5$ ,  $p < 0.01$ ;  $t = 5.49$ ,  $p < 0.01$ ). As far as the remaining four scales (Hysteria, Psychopathic Deviates, Paranoia, Schizophrenia) are concerned, the statistically significant change ( $t = 4.47$ ,  $p < 0.01$ ;  $t = 2.01$ ,  $p < 0.05$ ;  $t = 2.74$ ,  $p < 0.01$ ;  $t = 3.52$ ,  $p < 0.01$ ) in the patients’ mean result values at the outset and end of the treatment was manifested with the decrease in the sten scores in a moderate result range. That can be clearly explained by the fact that the profile of the treated persons came closer to the profile of the general population and positive changes in personality functioning in all analysed aspects occurred.

The statistically significant change in Mania ( $t = -2.95$ ,  $p < 0.01$ ) was not reflected in a clinical change: a slight increase in the median sten scores after the treatment might have been related to the patients' increase in activity level and stimulation to act. However, it did not move to the pathology area and it stayed on a positive low level characteristic for the healthy people. The result in the Masculinity/Femininity scale was not significantly changed either. It demonstrates that the manner the patients experienced themselves in the context of masculinity/femininity was not significantly modified as a result of psychotherapy.

The result analysis which considered the gender factor (Table 5 and 6) in most cases confirmed the results of the entire group. The highest average scores before the therapy both for men and women occurred in the Depression and Psychathenia scales, whereas the lowest ones in the Mania scale (level similar to the one in the healthy population before and after the treatment). No significant difference resulting from the treatment between the groups was also observed in the changes of the seven scales which were under scrutiny with the exception of the Psychopathic Deviate scale (a lack of statistical significance in the change between the initial and the final result in women and men) as well as in the Mania scale (no statistical significance in men) despite the change in sten scores and its analogy in the whole group. The lack of statistical significance can be related to the lower number of groups which were analysed with the statistical significance related to the whole group. Because of that and due to considerable differences in the number of women and men (representative of the patient population receiving treatment in daytime psychotherapy centres for neurotic and personality disorders), the limitation to the above result analysis occurred with the disregard of statistical comparisons between the differences in the median result values scored in before/after measurements using ANOVA.

The change worth consideration is the one that occurred in the Masculinity/Femininity scale in a male/female group in comparison with the result of the entire group. The division into groups considering the gender aspect indicates low results in the Masculinity/Femininity scale in the female group, which suggests that women function in traditional female roles more frequently, whereas the male patients clearly tend to function in the opposition to traditional male roles with a more frequent rejection of stereotypical masculine behaviour (still in the range that is not to be interpreted). The tendency stayed present in both groups after the treatment finished.

Table 5. **Clinical scale results – men**

CLINICAL SCALES	PRE-TREATMENT MEAN	POST-TREATMENT MEAN	PRE-TREATMENT SD	POST-TREATMENT SD	DIFFERENCE	t/z	p
Hs	60	55	10.3	10.1	5	1.70	< 0.01
D	65	56	13.1	11.7	9	2.37	< 0.05
Hy	64	60	10.4	10.1	4	3.18	< 0.01

*table continued on the next page*

Pd	62	59	8.8	9.2	3	1.85	0.06*
Pa	59	55	9.4	8.9	4	1.83	< 0.05
Pt	68	58	9.2	10.4	10	4.04	< 0.01
Sc	62	58	9.6	9.8	4	2.15	< 0.05
Ma	51	54	11.4	10.2	5	-1.80	0.08
Si	59	53	11.9	11.4	6	2.93	< 0.01
MF	61	59	13.1	12.5	2	0.83	0.41

Level of significance  $p < 0.05$

Pre/Post-treatment – the results of measurements carried out at the beginning (PRE) and after completion (POST) of treatment.

\*Wilcoxon non-parametric test

Table 6. Clinical scale results – women

CLINICAL SCALES	PRE-TREATMENT MEAN	POST-TREATMENT MEAN	PRE-TREATMENT SD	POST-TREATMENT SD	DIFFERENCE	t/z	p
Hs	59	54	9.6	9.6	5	4.40	< 0.01
D	64	58	9.3	11.9	6	5.27	< 0.01
Hy	64	59	10.5	9.8	5	3.48	< 0.01
Pd	60	58	10.0	9.9	2	1.39	0.16
Pa	57	54	8.0	8.0	3	2.07	< 0.05
Pt	64	59	8.0	9.4	5	4.45	< 0.01
Sc	60	56	9.1	11.1	4	2.80	< 0.01
Ma	50	53	9.7	10.8	3	-2.38	< 0.05
Si	58	52	11.0	12.1	6	4.61	< 0.01
MF	44	45	9.7	9.7	1	-1.18	0.24

Level of significance  $p < 0.05$

Pre/Post-treatment – the results of measurements carried out at the beginning (PRE) and after completion (POST) of treatment.

The analysis of the effect size in the changes developed as a result of psychotherapy in the examined group (with reference to the previously mentioned Cohen's standards) shows significant efficacy of the applied therapeutic interactions in the scales of Hypochondria, Depression, Hysteria, Psychosthenia, Schizophrenia, Social Introversion, whereas in the Psychopathic Deviate scale the efficacy was moderate. Table 6 illustrates the Effect Sizes for the clinical scales.

Table 7. Effect sizes for clinical scales

CLINICAL SCALES	EFFECT SIZES –Cohen's d
Hs	0.99
D	1.18
Hy	0.78
Pd	0.44
Pa	0.60
Pt	1.29
Sc	0.78
Ma	0.65
Si	1.22
MF	0.10

Table 8. The number of patients achieving the results in the particular ranges of clinical scales – percentage comparison before and after treatment

Clinical scales	Pre/Post**	High ( $\geq 65$ )	Moderate (55–64)	H+M*	Medium and low ( $\leq 54$ )	Pre/Post**	Total
Hypochondriasis (Hs)	Pre	30.4%	41.4%	71.8%	28.2%	Pre	100%
	Post	15.8%	29.4%	45.2%	54.8%	Post	100%
Depression (D)	Pre	52.4%	32.9%	85.3%	14.7%	Pre	100%
	Post	36.0%	27.5%	63.5%	36.5%	Post	100%
Hysteria (Hy)	Pre	51.2%	30.4%	81.6%	18.4%	Pre	100%
	Post	32.9%	34.2%	67.1%	32.9%	Post	100%
Psychopathic Deviate (Pd)	Pre	45.1%	29.2%	74.3%	25.7%	Pre	100%
	Post	29.2%	37.9%	67.1%	32.9%	Post	100%
Paranoia (Pa)	Pre	20.7%	35.3%	56.0%	44.0%	Pre	100%
	Post	11.0%	30.5%	41.5%	58.5%	Post	100%
Psychasthenia (Pt)	Pre	53.6%	36.5%	90.1%	9.9%	Pre	100%
	Post	28.0%	42.8%	70.8%	29.2%	Post	100%
Schizophrenia (Sc)	Pre	36.5%	35.3%	71.8%	28.2%	Pre	100%
	Post	23.1%	32.9%	56.1%	43.9%	Post	100%
Hypomania (Ma)	Pre	10.9%	20.7%	31.6%	68.4%	Pre	100%
	Post	14.6%	25.6%	40.2%	59.8%	Post	100%
Social Introversion (Si)	Pre	31.7%	29.2%	60.9%	39.1%	Pre	100%
	Post	19.5%	23.5%	43.0%	57.0%	Post	100%

\* H+M (High + Moderate): percent of persons in the studied group, in whom values of clinical scales, measured at the beginning of treatment, indicated disorders in personality functioning.

\*\*Percentage values characterizing data from measurements at the beginning of therapy (Pre) and at the end of treatment (Post).

The clinical significance analysis of the occurring changes demonstrate that after the treatment ended (Table 8), the majority of patients in the examined group achieved results representative for healthy individuals in Hypochondria (an increase from 28.2% at the outset to 54.8% of the patients with scores analogous to the results of the healthy population), Paranoia (to 58.5% from 44%) and Social Introversion (to 57% from 39.1%). A significant number of patients transferred from pathological range results to the healthy range in the following scales: Depression (from initial 14.7% to 36.5% in the health range as the treatment ended), Hysteria (from initial 18.4% to 32.9%), Psychopathic Deviates (from 25.7% to 32.9%) and Psychasthenia (from the initial 9.9% of the patients in the health range to 29.2% at the end). A simultaneous decrease in the number of patients who scored high in the seven clinical scales under analysis was observed: Hypochondria (from 30.4% to 15.8%), Depression (from 52.4% to 36%), Hysteria (from 51.2% to 32.9%), Psychopathic Deviates (from 45.1% to 29.2%), Paranoia (from 20.7% to 11%), Psychasthenia (from 53.6% to 28%), Schizophrenia (from 36.5% to 23.2%), Social Introversion (from 31.7% to 19.5%). The calculated effect size levels are within high ranges and allow for the proposal of the hypothesis to be put forward that the applied therapy was highly effective [28].

## Discussion

The study results corroborate the conclusions drawn from the scarce reports in the world publications on changes occurring in personality functioning in patients who suffer from neurotic and personality disorders and undergo intensive short-term comprehensive psychotherapy treatment (group therapy with elements of individual therapy). Therefore, they bring innovative contribution to the research on psychotherapy efficacy. They also take up the challenge that contemporary psychotherapy process researchers face which is not only the statistical significance of changes resulting from the treatment but also the clinical significance of results which are compared to standards characteristic for the healthy population. It has significance from both a scientific perspective and a clinical one that poses questions about the quality and direction of the occurring changes.

The study carried out by Berghout and Zevalkink [61] involved the group of 231 patients of which 73% were women. The patients received treatment of long-term psychoanalytic psychotherapy in several centres mainly due to personality, neurotic and depressive disorders. The measurements carried out before and after the therapy demonstrated the significant change in MMPI scales: Depression, Hysteria, Psychopathic Deviates and Social Introversion. The results showed a significant clinical improvement and the functioning of the patients which was closer to the one characteristic for the healthy population. Berghout and Zevalkink's results [61] bear resemblance to the ones collected in this study. Simultaneously, they allow for making the comparison which

concludes that the range of changes in the study patients concerns a wider spectrum of scales and is likely to be achieved as a result of short-term intensive therapy as well. In Berghout and Zevalkink's study [61] the Masculinity/Femininity scale results were disregarded. That was the consequence of the previous research reports which concluded that it is not a psychopathology diagnostic scale and as such no major changes in its range are observed as a result of psychotherapeutic interactions, which was corroborated by this study as well. Another clinically significant point is the fact that the changes in the listed MMPI-2 scales reported by Berghout and Zevalkink turned out to be constant in time, which was verified by the follow-up study conducted two years after the therapy ceased. It is a significant observation which justifies carrying out a catamnestic study with a clinically different group of patients. The project that is being planned.

Study by Vlastelic et al. demonstrated [62] that statistically and clinically significant changes in personality measured with the MMPI-2 questionnaire in patients with anxiety and personality disorders occurred only after four years as a result of long-term psychoanalytic psychotherapy. After two years the changes were marked to head in the positive direction but with an inconsiderable strength (statistically insignificant), particularly in Depression, Hysteria, Psychopathic Deviates and Paranoia. The results of our study show that the application of intensive psychodynamic group therapy with elements of individual psychotherapy may contribute to a higher intensity and expedition of improvement in personality functioning when compared to the results of the patients undergoing long-term individual psychoanalytic psychotherapy (in one weekly session setting in particular).

The results we collected from our study complement the earlier observations made by the researchers of intensive psychodynamic psychotherapy *inter alia* Sobański et al. [63], Mielimąka et al. [60] and Styła et al. [4] who determined that in a vast majority of patients an improvement occurred not only on a neurotic symptom level but also a significant decrease in neurotic personality trait severity was reported. The study pertained to the personality areas which had not been researched in Poland before as it implemented MMPI-2 – a new tool in psychotherapy efficacy research.

The study conclusion which seems to be of the most substantial significance is the corroboration that the positive changes in personality functioning can be developed as a result of a short-term intensive psychodynamic psychotherapy interaction in patients whose initial results are placed in the psychopathology range at a moderate or even high level in most clinical scales. The positive changes were revealed from the perspective of a statistical and clinical significance, which was verified by the calculated effect size values of clinical scales (0.44–1.29 except for Masculinity/Femininity scale). It is of key importance considering the fact that test/re-test studies carried out both in the healthy population [54] and untreated unhealthy persons [64] stay constant in time. The positive changes that were developed refer to all analysed personality areas with the exception of the Mania scale in which most patients were indeed in the range indicative of healthy persons at the treatment outset. No significant change was



observed in the Masculinity/Femininity scale, which is consistent with the past research results [62] and offers the premise to believe that the psychotherapy applied in the examined group does not have a significant impact on the functioning in a particular gender role. What may be of interest and require further research is the observation that considering the gender division, women functioned in a much closer traditional female role than men in a traditional masculine one.

The study shall serve as an introduction to further research on changes in patients' personality functioning. The results of the MMPI-2 scales, which were analysed, were referred to characteristic values present in the population of healthy person which served as a comparative group in accordance with the results of Psychological Test Laboratory [52]. While interpreting the changes that ensued, a simultaneous reference to the data in the publications which verified the stability of MMPI-2 results in time in test/re-test measurements was made [65]. Undoubtedly, a further possibility to compare the collected results with the results of the control group or the patients receiving treatment in a different psychotherapy type/form would be of major benefit. Such attempts are being considered in the future as a further phase of this research. If making generalisations about a wider group of patients based on the results collected, it should be noted that women under the age of 40 constituted the majority of the study group. Also, the fact that at the qualification stage the study group comprised of a high number of persons who were diagnosed with anxiety disorders F43 (17 persons) and mixed personality disorders F61 (12 persons), which constituted 35% of all diagnoses. A small number of people with the diagnosis of specific personality disorders (60.1–F60.7) significantly reduces the ability of reference of the results to the population of that group. Undoubtedly, the question that seems relevant is about how constant in time the changes observed in the therapy are. Therefore, a follow-up study is being planned to be carried out.

Despite the aforesaid limitations, the study results suggest positive changes in personality functioning in the majority of patients who undergo intensive short-term group psychotherapy with elements of individual therapy. Except for the previously mentioned suggestions such as the inclusion of a control group, carrying out a follow-up study and extending the analyses with other questionnaire scales, any further research might consider also making a comparative study of the MMPI-2 results with other test tool results (KO"O", KON-2006, STAI) collected in various study centres as well as analysing adverse courses of treatment.

## Conclusions

1. Most patients who qualified for the therapy of neurotic and personality disorders at the outset of the therapy had the results in the five MMPI-2 scales (Depression, Hysteria, Psychopathic Deviates, Psychasthenia, Schizophrenia) in the range of severe pathology. Moderate pathology in Hypochondria both in male and female groups was observed.

2. In the Mania scale the majority of patients who started the treatment indicated the results similar to healthy population results.
3. As a result of group psychotherapy with elements of individual psychotherapy a positive change in personality functioning was observed in most patients receiving treatment for neurotic and personality disorders.
4. The average severity of personality disorders is decreased in all the scales which at the outset of the treatment indicated pathology. In some scales the observed moderate level is decreased to the level characteristic of the healthy individuals at the end of the treatment.
5. The Masculinity/Femininity scale results calculated for the entire examined group at the qualification for treatment stage stayed at the level which is not subject to interpretation. The results in the subgroups divided by the gender factor offer the premise for the hypothesis that both before and after the treatment female patients function in traditional feminine roles more frequently than male patients who are in the opposition to the traditional masculine roles more frequently (still within the area not subject to interpretation).

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