Assessment of changes in the severity of depressive and anxiety symptoms using a tripartite model of anxiety and depression.

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Summary

Aims. Assessment of changes in the severity of symptoms in patients with neurotic and personality disorders using the Clark and Watson's tripartite model of anxiety and depression.

Material and methods. In total 77 patients were included in the study, 20 men and 57 women in the age range from 20 to 56 years old (median 33 years old). Assessments were done before and after treatment in an outpatient ward for patients diagnosed with neurotic and personality disorders. The treatment took the form of 12 weeks of group psychodynamic therapy. The severity of symptoms was assessed using the SCL-90-R (Symptom Checklist-90-Revised) and PSE (Present State Examination from SCAN 2.0) questionnaires.

Results. The mean ratings of both subjective (SCL-90-R) and objective (PSE) measures of the elements in the tripartite model decreased during treatment. These decreases are statistically significant for all the scales, although they are small. A greater decrease was noticed in the LPA ratings according to the PSE questionnaire. The pattern of changes was similar for all the elements of the tripartite model. Slightly less than ⅔rd of the respondents showed an improvement, the ratings of about 25% rose and the ratings of the remaining 10% did not change.

Conclusion. The results indicate that the usefulness of the tripartite model of anxiety and depression in the group of patients is limited. The differences between the first and second assessment were similar in all three dimensions, so they are exchangeable.

Key words: psychotherapy, tripartite model of anxiety and depression.

Introduction

Symptoms of anxiety and depression are common components of psychiatric disorders. They constitute a significant part of mood and anxiety disorders, as well as appearing in the majority of psychiatric disorders. Current psychiatric classification systems: DSM-IV and ICD-10 distinguish anxiety disorders from mood disorders. This is not in accordance with common clinical experience, but is of great clinical significance. Separately defined disorders are characterised by patterns of symptoms that may be used to make psychopathologic descriptions. This enables the description of symptoms of depression, general symptoms of anxiety or panic attacks, since these are defined in classifications. This also enables the consideration of sub-threshold

symptoms, coexisting with other psychiatric disorders or appearing separately, that do not meet the criteria for diagnosing any mood or anxiety disorder, but are noticeable clinical facts.

The abundance of different anxiety and mood disorders causes problems during clinical assessments, because many patterns of symptoms should be taken into consideration. Such accuracy is not always necessary. For many clinical purposes an assessment of the general severity of symptoms is adequate.

Clark and Watson proposed the tripartite model of anxiety and depression [1, 2, 3] based on a general division of emotions into positive and negative ones. Symptoms have been divided into 3 groups: non-specific Negative Affect (NA), Positive Affect (PA) or Low Positive Affect (LPA) connected with symptoms of depression and Physiological Hyper-arousal (PH) connected with anxiety. Negative Affect is common in many psychiatric disorders and physical conditions. It can be assessed with well known, widely used questionnaires such as: the General Health Questionnaire (GHQ), Hospital Depression and Anxiety Scale (HADS), Beck's Depression Inventory (BDI), Zung's Self-rating Depression Scale (SDS) and many others. The severity of NA depends on personal sensitivity to stress (this can be measured by Eysenck's neuroticism scale) and the occurrence of stressful events. (Low) Positive Affect is more specific and represents the depressive dimension of psychopathology connected with the extraversion/introversion scale. Physiological Hyper-arousal is a manifestation of anxiety and can be used as a measure of general symptoms of anxiety. Assessment of PH is essential in cases of panic attack and general anxiety, but does not cover avoidant phobic behaviour, which is a component of general affective distress.

The aim of this paper is to assess the change in the severity of symptoms of depression and anxiety during group psychotherapy using Clark and Watson's tripartite model of anxiety and depression.

Material and methods

Assessments were done before and after treatment in an outpatient ward for patients diagnosed with neurotic, stress related and somatoform disorders (F4x) and personality disorders (F60-F61). The treatment took the form of 12 weeks of group psychodynamic therapy. There were 2 sessions every working day, both 1.5 hours long.

The severity of symptoms was assessed using the SCL-90-R (Symptom Checklist-90-Revised), and PSE (Present State Examination from SCAN 2.0) questionnaires. The SCL-90-R is a 90-item self-report inventory of symptoms. Each item is rated on a 5 point scale (0-4). The questionnaire was created to evaluate the psychological patterns of symptoms of community, medical, and psychiatric respondents [4, 5]. The SCL-90-R ratings are interpreted in terms of 9 dimensions of symptoms: somatization (SOM), obsessive-compulsive (O-C), interpersonal sensitivity (I-S), depression (DEP), anxiety (ANX), hostility (HOS), phobic anxiety (PHOB), paranoid ideation (PAR), psychoticism (PSY) and one additional scale containing additional depressive symptoms (AI). The two psychotic scales were omitted during the analysis, because none of the patients had any psychotic symptoms and their ratings could be misleading.

The PSE questionnaire is aimed at assessing, measuring and classifying the psycho-pathology and behaviour associated with major psychiatric syndromes. An interview is carried out by a clinician, who rates the severity of symptoms on a 4 point scale: (0) symptom absent after appropriate examination, (1) the symptom was present during the interview but only to a mild degree, below the threshold for diagnosis but notice-able, (2) the symptom is definitely present, but of moderately severe intensity or, if severe, was present for less than half the interview, and (3) severe for more than half the period of the interview [6, 7].

Ratings for the dimensions of the tripartite model were calculated from the SCL-90-R ratings (subjective) and PSE ratings (objective). These questionnaires do not contain symptoms related to Positive Affect, so symptoms related to low positive affect (such as anhedonia) were used instead. A subjective measure of Negative Affect was calculated as the average value of the following items located in various SCL-90-R scales: I-S (6, 34, 36, 37, 41, 69), ANX (2, 23, 33, 57, 72, 78, 80, 85), HOS (11, 24, 74), and DEP (22, 26, 28, 30, 31, 54, 79). An objective measure of Negative Affect is the average value of the PSE items: worrying, apprehension, tension, reduced self-confidence and self esteem, ideas of death, feeling of despair, irritability, difficulty in concentrating, feelings of self reproach or inappropriate guilt. A subjective measure of Low Positive Affect is the average value of the following SCL-90-R ratings: loss of interest in sex or pleasure (5), feeling low in energy or sluggish (14), poor appetite (19), feeling no interest in things (32), feeling everything is an effort (71), feeling lonely even when you are with people (77). An objective measure of Low Positive Affect is the mean of: anhedonia (loss of interest in or enjoyment of pleasurable activities), reduced energy, loss of motor activity, poor appetite, a perceived inability to cope with routine responsibilities and social withdrawal. Physiological Hyperarousal is calculated as a weighted total of the SOM rating from the SCL-90-R questionnaire and the following items: trembling (17) and heart pounding or racing (39) from the ANX scale. An objective (PSE) rating of Physiological Hyper-arousal is the average total of somatic symptoms of anxiety as defined for a general anxiety disorder according to the ICD-10 diagnostic criteria.

Statistical comparisons were made with the parametric t-test for dependent variables using the statistical computer package Statistica (version 7). The study was carried out in accordance with the guidelines of the local ethic committee and supported by the Wrocław Medical Academy grant No 943/03.

Results

In total 77 patients were included in the study, 20 men and 57 women in the age range from 20 to 56 years old (median 33 years old). 63 patients were diagnosed with neurotic, stress related or somatoform disorders. 28 patients were diagnosed with personality disorders. Thus, 14 subjects were diagnosed as having only personality disorder and 14 subjects were diagnosed as having both type of disorders.

The mean ratings of both the subjective (SCL-90-R) and objective (PSE) measures of the elements in the tripartite model decreased during treatment. The differences are

statistically significant for all the scales (Table 1), although the decreases in the means were small. A larger change was observed in the LPA ratings according to the PSE questionnaire. The distributions of the decreases in the ratings between the first and second assessment are shown in Figures 1 and 2. The correlation coefficients between pairs of variables are shown in Table 2.

The pattern of change was similar for all the elements of the tripartite model. Slightly less than ⅔rd of the respondents showed an improvement, the ratings of about 25% of the patients increased and the ratings of the remaining 10% did not change. There were no significant differences in the percentages of patients showing improvement according to the SCL-90-R (subjective) and PSE (objective) assessments, except in the case of the LPA scale.

Table 1

Negative Affect, Low Positive Affect and Physiological Hyper-arousal measures before and after treatment

Scale	mean				t-test for dependent samples	
	before treat-ment	after treatment	difference	improvement n (%)	Realisation of t statistic	p value
SCL-90-R						
NA	2.07	1.78	-0.28	50 (65%)	2.83	0.006
LPA	2.14	1.82	-0.31	50 (65%)	2.69	0.009
PH	1.50	1.17	-0.35	49 (63%)	4.24	<0.001
PSE						
NA	1.79	1.42	-0.22	51 (67%)	4,04	<0.001
LPA	1.16	0.80	-0.35	50 (65%)	3.96	<0.001
PH	1.05	0.79	-0.25	50 (65%)	4.65	<0.001

NA – Negaataive Affect
LPA – Low Positive Affect
PH – Physiological Hyper-arousal

Discussion

The changes in the ratings were very similar according to all the scales. In fact, there were no significant differences between the decreases observed in the three dimensions of the tripartite model. Considering the standardised changes measured by the appropriate realisation of the t statistic, the greatest decreases were in the PH dimension, whereas the smallest decreases were in the LPA dimension. The percentage of patients showing an improvement did not significantly depend on the scale used (this percentage was always in the range 63% - 67%). It follows that the symptoms observed in all of these three dimensions are strongly correlated in this group of patients.

The differences in the reaction of the patients to treatment, reflected by the range and variance of the difference between the ratings from the first and second assessment,
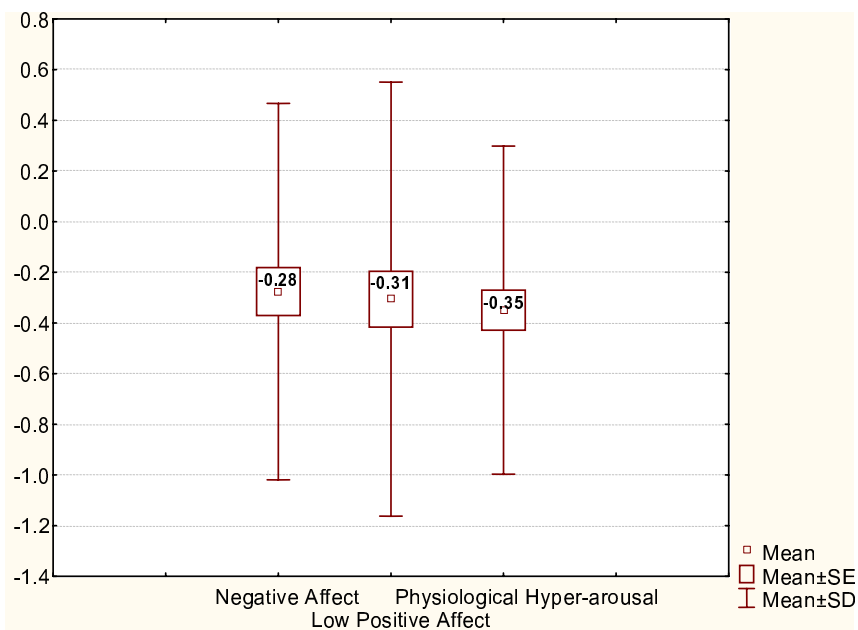
Fig. 1. **Differences in the severity of symptoms in the tree dimensions of the tripartite model according to the SCL-90-R scale**
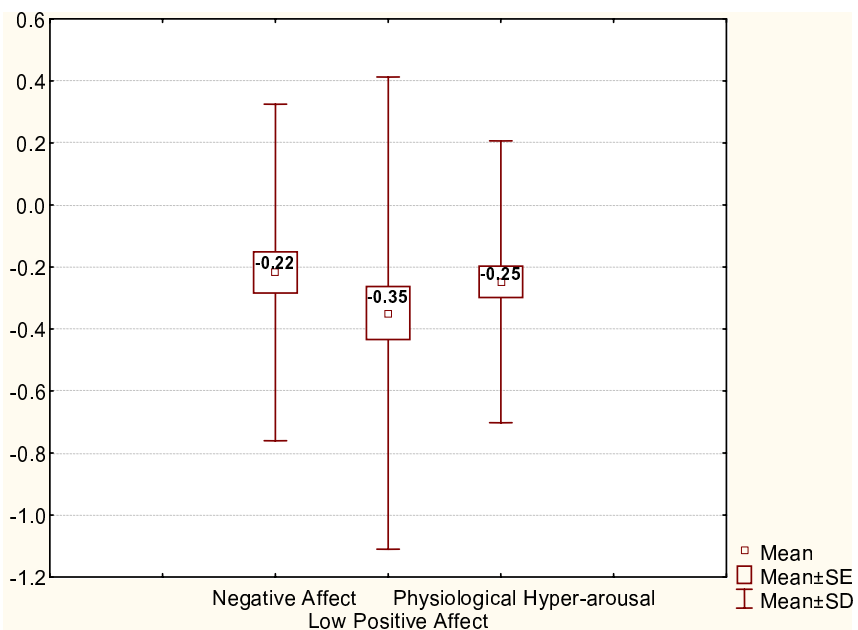

Fig. 2. **Differences in the severity of symptoms in the tree dimensions of the tripartite model according to the PSE scale**

Table 2

Significant correlations between measures in the three dimensions of the tripartite model

	PSE						SCL-90-R					
	NA1	NA2	LPA1	LPA2	PH1	PH2	NA1	NA2	LPA1	LPA2	PH1	PH2
NA1	-	0.55	0.79	0.42	0.44		0.37		0.32	0.37	0.31	
NA2	0.55	-	0.32	0.80		0.52	0.45	0.60	0.32	0.63		
LPA1	0.79	0.32	-	0.32	0.45				0.33		0.34	
LPA2	0.42	0.80	0.32	-		0.46	0.31	0.60	0.34	0.69		
PH1	0.44		0.45		-	0.67	0.37		0.35		0.55	0.39
PH2		0.52		0.46	0.67	-	0.43	0.54		0.52	0.43	0.61
NA1*	0.37	0.45		0.31	0.37	0.43	-	0.63	0.81	0.51	0.68	0.51
NA2*		0.60		0.60		0.54	0.63	-	0.48	0.86	0.38	0.65
LPA1*	0.32	0.32	0.33	0.34	0.35		0.81	0.48	-	0.55	0.70	0.47
LPA2*	0.37	0.63		0.69		0.52	0.51	0.86	0.55	-	0.36	0.60
PH1*	0.31		0.34		0.55	0.43	0.68	0.38	0.70	0.36	-	0.68
PH2*					0.39	0.61	0.51	0.65	0.47	0.60	0.68	-

     * SCL-90-R measures

were most noticeable according to the LPA scale and less noticeable according to the PH scale. So the assessments of the changes were least variable in the PH dimension and more variable in the LPA dimension. It is likely that these results depict a specific characteristic of short-term group psychotherapy – it leads to a consistent improvement in somatoform symptoms and a variable improvement in LPA symptoms, to a large degree influenced by the effect of separation.

The SCL-90-R ratings were less variable than the PSE ratings. This can be seen from the correlation matrix and the smaller decreases in the means. Despite the wider range of the SCL-90-R ratings (5 points) than the PSE ratings (4 points), the difference between the greatest and the smallest mean change in the three dimensions (Table 1) according to the SCL-90-R questionnaire (0.07) was almost twice as small as the analogous difference according to the PSE questionnaire (0.13). Similarly, the correlations between the SCL-90-R ratings were higher than the correlations between the PSE ratings, especially with respect to the PH dimension (Table 2). This may well reflect the fact that subjective ratings are more influenced by the emotional context. Patients were less accurate in their assessments than clinicians, because clinicians carried out their assessment with more reserve, so they could spot smaller differences.

In contrast to the independence of Positive and Negative Affect in healthy subjects [Gencoz, Laurent], these dimensions were highly correlated in the group of patients. This effect arose partly due to the use of the Low Negative Affect measure, instead of Negative Affect and partially from the fact that changes in Negative Affect and Positive Affect resulted from the same emotional process connected with neuroticism

as a personality trait. The decreases in the PH ratings were more significant than the decreases in ratings in other dimensions, especially according to the PSE scale.

These results indicate that the usefulness of the tripartite model of anxiety and depression is limited for this group of patients. The differences between the ratings from the first and second assessment were similar in all the three dimensions, so they are interchangeable. There are many questionnaires measuring non-specific affective distress, such as the General Health Questionnaire (GHQ), Hospital Anxiety and Depression Scale (HADS) and Beck's Depression Inventory (BDI) [8,9]. If there is a need for detailed assessments, applying specific scales based on classified patterns of neurotic disorders and depression could be more useful than applying scales based on the tripartite model.

Conclusion

The results indicate that the usefulness of the tripartite model of anxiety and depression is limited for this group of patients. The differences between the ratings from the first and second assessment were similar in all the three dimensions, so they are interchangeable.

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