ORIGINAL INVESTIGATIONS

Immunoinflammatory rheumatic diseases: the role of the perception of the disease and coping with it in the psychological adaptation of the patient

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Objective: *to analyze the subjective perception of the disease, coping behavior and adherence to treatment as parameters of psychological adaptation of patients with immunoinflammatory rheumatic diseases (IIRD).*

Patients and methods. *163 women with IIRD who were on inpatient treatment were examined: 63 with systemic lupus erythematosus, 50 with rheumatoid arthritis, and 50 with systemic scleroderma. The mean age of the patients was 34.00±17.46 years.*

Results and discussion. *Groups of patients with different types of perception of the disease were identified: "Unformed perception of the disease" (group 1), "Positive perception of disease control" (group 2), "Negative perception of disease threat" (group 3). When comparing the three groups, it was found that in the group with an unformed perception of the disease, negative emotional experiences were less pronounced than in the other two groups. At the same time, the coping strategies "Self-control" and "Problem solving planning" were significantly higher in the group of patients who positively perceived the control of their disease.*

Conclusion. *Psychological adaptation of patients with IIRD depends on the type of perception of the disease. The identification of two basic profiles ("Disease threat perception" and "Disease and treatment control perception") and three types of disease perception ("Unformed type of disease perception", "Positive perception of disease control", "Negative perception of the disease threat") made it possible to obtain new, more differentiated ideas about the perception of the disease, which is the target of correctional psychological work with patients suffering from IIRD.*

Keywords: *immunoinflammatory rheumatic diseases; psychological adaptation; perception of the disease; coping behavior; adherence to treatment.*
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Immune-inflammatory rheumatic diseases (IIRD) are a heterogeneous group of systemic chronic diseases, the development of which is associated with impaired immunological tolerance to their own tissues (autoantigens) and is characterized by chronic inflammation and progressive irreversible damage to internal organ function. Rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), systemic scleroderma (SSD), and some other diseases are referred to as IIRDs. The relevance of the problem of IIRDs for modern medicine is determined by its high prevalence in the population, difficulty of early diagnosis, rapid disability of patients, and adverse life prognosis. At the same time, IIRDs are an illustrative model for studying the complex processes of psychological adaptation of an individual under conditions of a chronic somatic disease. Their progressive course with a tendency to relapse and the necessity of constant complex treatment require active involvement and effective behavioral strategies from the patient [1].

The aim of the study is to analyze the subjective perception of the disease, coping behavior, and adherence to treatment as parameters of psychological adaptation in patients with IIRDs.

Research Objectives:

1. Identification of profiles and types of patients' perception of IIRDs.

2. A comparative study of the parameters of psychological adaptation to illness in patients with different types of IIRD perception.

Patients and methods. The study involved 163 women with IIRDs who were undergoing inpatient treatment in V.A. Nasonova Research Institute of Rheumatology: 63 with SLE, 50 with RA, and 50 with SSD. Their mean age was 34.00±17.46 years. The study was performed within the interinstitutional agreement about scientific and practical cooperation and was approved by the local ethics committee of V.A. Nasonova Research Institute of Rheumatology as a fragment of basic scientific research (state registration number 1021051503111-9). All patients signed an informed consent to participate in the study.

Methods:

1. Brief Illness Perception Questionnaire [2].

2. Methods for psychological diagnostics of ways of coping with stressful and problematic situations [3].

3. Symptom Check List-90-Revised – Depression and Anxiety scales [4].

4. Morisky Medication Adherence Scale (MMAS-8, 2008) [5].

Statistical analysis. Statistical processing of the results was performed using the SPSS Statistics software package (Vers. 23).

Analysis of variance was used to compare the mean values between the groups. Differences were considered statistically significant at $p<0.05$. Factor analysis was performed by the principal component method, the Varimax factor rotation method, taking into account the Kaiser–Meyer–Olkin test. Data clustering was performed by the k-means method (with ANOVA analysis of variance).

Results

Results of identifying baseline profiles and types of patients' perceptions of IIRD. This stage of results processing involved the identification of basic profiles of patients' perceptions of IIRD with the description of comparison groups based not on nosological criteria, but on a psychological parameter – patients' subjective illness perceptions, according to which they choose ways of coping with the disease. For this purpose, we conducted a factor analysis of the components of chronic disease perception and clustering of the observed cases according to the degree of manifestation of the factors identified.

Factor analysis of IIRD perception components allowed us to identify two statistically significant factors, presented in Table 1.

Table 1. Factor load of illness perception components

Components of illness perception		
	Factor 1	Factor 2
Threat of illness	**0.903**	-0.252
Consequences of illness	**0.793**	-0.014
Worries about the illness	**0.788**	0.036
Emotional response	**0.772**	-0.067
Illness identification	**0.698**	0.128
Course of the illness	**0.366**	0.300
Control of illness	-0.069	**0.844**
Control of treatment	-0.046	**0.814**
Understanding of illness	0.048	**0.802**

Factor 1, named "Perception of Threat of Illness", included six components, the combination of which we consider to be one of the basic profiles of patients' perception of IIRD:

1. Threat of illness (factor load value r=0.903) – any physical, emotional, or social risk that may affect or is already affecting physical or mental health.

2. Consequences of illness (r=0.793) – perceptions of existing and perceived effects of illness on biological, psychological, and social well-being.

3. Worry about illness (r=0.788) – concern about the burden of illness.

4. Emotional response to illness (r=0.772) – the expectation of harm, discomfort, anxiety, and possible danger associated with illness.

5. Identification of disease symptoms (r=0.698) – ability to recognize manifestations of the disease.

6. Perception of the course of the disease (r=0.366) – perceptions concerning the expected duration of the disease.

Factor 2, named "Perception of Controllability of Illness and Treatment," included three components, the combination of which we consider to be another variant of the basic profile of IIRD perception:

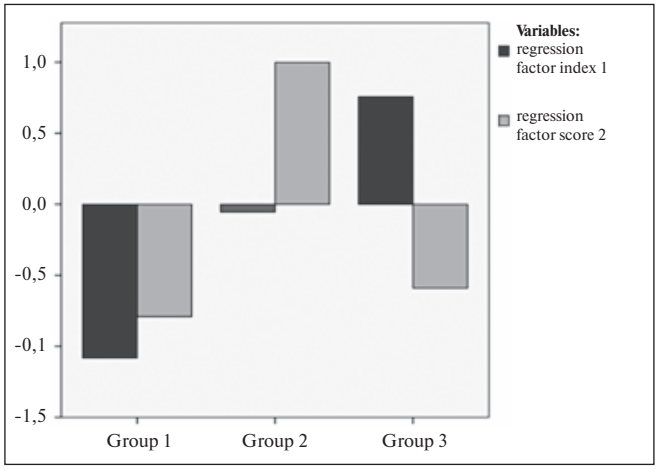
1. Illness controllability (r=0.844) – the patient's belief that the illness can be controlled.

2. Controllability of treatment (r=0.814) – the patient's belief in the possibility of a cure through self-monitoring of therapy, specialized assistance from medical personnel, or social support from other significant people.

3. Understanding of the illness (r=0.802) – metacognitive level of understanding of the illness reflecting the ability of its perception [6].

In general, the perception of the threat of the illness to life and well-being correlates with the formation of maladaptive, mostly negative, cognitive conceptions of the long-term course of the disease, and its severe consequences against the background of an emotionally strained state [7]. At the same time, the perception of controllability of one's own disease is based on clear adaptive, positive ideas of the patient about the mechanisms of its course, as well as information about effective ways of coping with the disease manifestations, including with the help of treatment [8, 9].

Depending on the degree of manifestation of the two illness perception profiles previously identified on the basis of factor analysis ("Perception of the threat of an illness" and "Perception of controlling the illness and treatment"), the patients were divided into three groups with different types of IIRD perception: group 1 – "Unformed conceptions of the illness", group 2 – "Positive ideas about the illness", group 3 – "Negative ideas about the illness". The figure shows the intensity of the highlighted factors in each group.



The degree of manifestation of the factors "Perception of the threat of the illness" (gray bars) and "Perception of controllability of the illness and treatment" (black bars) in three groups

The identification of these groups served as the basis for the description of three types of IIRD perception for the purpose of the subsequent comparative analysis of the parameters of adaptation to the illness typical of each of them.

In the first type ("Unformed type of illness perception", group 1, n=39), the identified threat and control factors were weakly expressed, which reflected a passive position in the illness perception. This type of IIRD perception was characterized by weak differentiation, diffuse, ambiguous, and blurred structure of perceptions of the disease.

In the second type ("Positive perceptions of disease control", group 2, n=65), positive parameters of illness perception ("Controllability of illness/treatment", "Understanding of illness") prevailed in terms of adaptation, compared to the reduced, maladaptive, negative parameters ("Consequences of illness" "Concerns about illness", "Emotional response to illness", "Identifying illness" and "Course of illness"). The positive type of illness perceptions in this group was determined by the patients' confidence that their moderately life-threatening illness could be controlled by self-

Table 2. Depression and anxiety scores in the groups of patients with different types of perceptions of IIRD**, points (M±SD)**

Scales	Group 1 «Unformed illness perception» (n=39)	Group 2 «Positive perception of illness control» (n=65)	Group 3 "Negative perception of illness threat" (n=59)	p
Depression*	0.91±0,56	1.16±0.65	1.41±0.72	p_{1-2}=0.030 p_{1-3}=0.001
Anxiety**	0.78±0.55	1.10±0.71	1.16±0.74	p_{1-2}=0.018 p_{1-3}=0.003

* Normal - 0.68±0.59 points; **normal - 0.62±0.62 points.

Table 3. Intensity of using coping strategies in groups of patients with different types of illness perception, points (M±SD)

Coping-strategy	Group 1 «Unformed illness perception» (n=39)	Group 2 «Positive perception of illness control» (n=65)	Group 3 "Negative perception of illness threat" (n=59)	p
Confrontation	42.55±11.67	45.89±1085	46.11±9.23	–
Distancing	48.7±12.31	47.44±11.11	48.62±10.05	–
Self-Control	41.44±1.99	47.26±12.10	43.39±12.63	p_{1-2}=0.009
				p_{2-3}=0.049
Seeking social support	46.71±10.48	49.20±10.40	48.40±9.52	–
Acceptance of responsibility	44.21±12.37	47.29±9.52	44.32±11.19	–
Escape-avoidance	46.60±12.91	48.33±9.60	49.94±11.28	–
Problem-solving planning	41.13±12.81	49.44±11.75	44.45±11.85	p_{1-2}=0.003 p_{2-3}=0.016
Positive re-evaluation	43.02±12.41	46.27±9.45	46.27±10.15	–

monitoring therapy and by assistance from medical personnel or social support.

The third type ("Negative Perception of Threat of Illness", group 3, n=59) was characterized by the predominance of low-adaptive parameters ("Perception of threatening illness", "Consequences of illness" "Concern about illness", "Emotional response to illness", "Identification of illness") over less pronounced positive parameters ("Perception of control of illness/control of treatment", "Understanding illness").

The negative character of illness perceptions was determined by the patients' thoughts about the serious consequences of the disease for health, concern about the presence of the disease and the worries associated with it, negative emotional reactions, feelings of anxiety, expectations of harm, unpleasant feelings and possible danger or misfortune, the state of tension, active recognition of the manifestations of disease, based on which the patient made assumptions concerning the symptoms, diagnosis, " stigma of the disease" and its course [6].

The results of a comparative study of the parameters of psychological adaptation to the disease of patients with different types of IIRD perception. Below we present the results of the descriptive and comparative analysis of emotional and motivational parameters, as well as the level of adherence to treatment as complex indicators of psychological adaptation in three selected groups of patients with different illness perceptions.

All three groups of patients with different types of IIRD perception revealed clinically pronounced levels of depression and anxiety. At the same time, as shown in Table 2, the indicators of depressive response were statistically significantly less pronounced in group 1 with unformed illness perception. In the groups with a positive perception of control and a negative perception of the threat of illness, these parameters were equally higher.

The data we obtained on the intensity of depression in different types of perceptions of IIRD complement the results of earlier studies, in which the prevalence of depression and anxiety in this patient cohort ranged from 20% to 35% [10–12].

Most patients in all three groups chose predominantly similar coping strategies in the context of illness, but there were significant differences in the scores on the "Self-Control" and "Problem-Solving Planning" scales. These strategies were statistically significantly less frequently used by the patients who did not have a clear idea of their illness or perceived it as a threat.

Table 3 shows that the strategies used by the patients of these three groups are within the normative corridor. Self-control strategies are statistically significantly more intensively used by patients with a positive type of illness perception compared to patients with both negative and undifferentiated types of perception. A similar tendency was revealed when assessing the choice of the strategy "Problem-solving planning". Positive perception of illness control and the effectiveness of its treatment correlates with more pronounced efforts aimed at controlling one's behavior and emotional reactions, as well as planning further actions to overcome stress.

On the basis of the analyzed models of self-regulation of personality under illness conditions we can suggest that patients' cognitive perceptions of their abilities to control and treat the disease activate appropriate effective behavioral strategies oriented to coping with the disease [13]. In general, the evidence

from contemporary research emphasizes the important role of illness perception and coping behavior in explaining the manifestations of distress and impairment of psychological well-being in somatic diseases [14, 15]. However, in order to use this information for the development of methods for improving psychological health of patients with chronic diseases, more research is needed to determine the role of coping behavior as a mediator between the perception of a chronic disease and its objective outcome [16].

In our study, group 2 with a positive perception of the illness revealed a moderate level of adherence to IIRD pharmacotherapy (6.38±1.42 points), while in groups 1 and 3 with unformed and negative perceptions, this index was statistically significantly lower: 5.11±2.18 and 5.41±1.86 points, respectively (p1-2=0.022, p2-3=0.013). Adherence to treatment was considered low for 0 to 5 points, medium for 6 to 7 points, and high for 8 points.

The results of the treatment adherence assessment complement the earlier findings: although problem-oriented coping in the positive control perception group did not reduce the high rates of negative affective response, it helped to form health-preserving adaptive behavior with respect to adherence to medical recommendations.

Studies on disease perception and adherence to treatment in patients with different nosologies demonstrate similar psychological mechanisms of interaction between these constructs. For example, patients with diabetes who believe that treatment allows them to control possible complications are more committed to therapy. Personal control also increases adherence to treatment in both adolescents and adults with arterial hypertension [17]. Based on these data, a model has been proposed in which perceptions of illness form the perceptions of treatment which determine adherence to therapy in both chronic and acute conditions. At the same time, perceptions of disease are not less important in the process of shaping adherence to therapy: they set goals, i.e. outcome expectations for assessing treatment efficacy [18].

Discussion. The described approach to the study of psychological adaptation of a personality under conditions of a chronic somatic disease, based on the selection of profiles and types of illness perception, opens up new possibilities for a deeper interpretation of various (including hidden) parameters of this complex and systemic process, its structure and dynamics.

The proposed isolation of different types of illness perception allows for a personalized approach in modern medicine, taking into account the psychological and psychotherapeutic components [19]. For patients with different types of illness perception, different targets, goals, and methods of subsequent psychocorrection can be determined, aimed at forming their internal picture of the disease, using an effective repertoire of coping strategies, increasing the level of adherence to treatment and adaptation to the disease in general [20]. Current studies on psychotherapy for somatic diseases point to the need for approaches with scientifically proven effectiveness [21].

Conclusion

1. The perception of IIRDs is characterized by two differentiated profiles. The "Perception of Threat of Illness" profile includes a combination of expressed components: "Threat of illness", "Consequences of illness", "Concern about illness", "Emotional response to illness", "Identification of manifestations of illness", "Perception of the course of illness". This profile correlates with the formation of maladaptive, predominantly negative, cognitive perceptions of the illness.

2. The profile "Perception of controllability of the illness and treatment" includes a combination of pronounced components: "Controllability of illness", "Controllability of treatment" and "Understanding of illness". This profile reflects the prevalence of patients' positive conceptions about the illness, contributing to their psychological adaptation.

3. The different expression of the basic profiles of illness perception in different patients allows us to distinguish three differentiated types of IIRD perception. The unformed type of illness perception is represented by a combination of weakly expressed profiles "Perception of the threat of illness" and "Perception of controllability of illness and treatment". In the second type of illness perception – "Positive perceptions of illness control" – positive parameters in terms of adaptation prevail: "Controllability of the illness/treatment", and "Understanding of the illness". The third type of illness perception – "Negative perceptions of the threat of illness" – is characterized by the prevalence of low adaptation parameters: "Perception of the threat of illness", "Consequences of illness" "Concern about illness", "Emotional response to illness", "Identification of illness" over less pronounced positive parameters: "Perception of illness control/treatment control", "Understanding of illness".

4. The patient's perception of his or her IIRD as a threat to life and well-being causes a lower adherence to treatment, an increase in anxiety and depressive reactions, as well as a lower frequency of choosing coping strategies and planning solutions to problems that are more effective in the situation of coping with the illness. The described features can serve as targets for psychodiagnostics, psychoeducation, and psychocorrection within the framework of clinical and psychological support of the treatment process and an increase in adaptation of rheumatological patients under disease conditions.

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