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# ALGORITHM OF PROGNOSIS OF PSYCHOLOGICAL ADAPTATION-MALADAPTATIONAS THE BASIS OF PERSONALIZED PSYCHO-CORRECTION OF PATIENTS WITH DERMATOLOGICAL DISEASES WITH DIFFERENT LEVELS OF VITAL THREAT

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## Abstract

**Purpose:** to substantiate the algorithm for predicting the state of psychological adaptation - maladaptation of patients with dermatological pathology with different levels of vital threat, on the basis of which to develop personalized psychocorrection programs for this contingent, and to evaluate the effectiveness of their implementation. .

**Contingent and research methods**. Based on the principles of biomedical ethics and deontology, we comprehensively examined 120 dermatological patients who were treated in three branches of the clinic "Dr. Zapolska Clinic" during 2020-2022, namely: 60 patients with non-vital dermatological diseases (seborrheic keratosis L82, condylomas A63.0, angiomas D18.0, pigmentation disorders L80), and 60 patients with dermatological diseases posing a vital threat ( melanoma C43, basal cell carcinoma C44, skin carcinoma in situ D04).

**Results**. Among patients with dermatological diseases, there are both psychologically adapted and maladapted individuals, regardless of the vitality/non-vitality of the pathological process.

The process of formation of psychological maladaptation in patients with dermatological diseases with different levels of vital threat does not have nosospecificity, but depends on the initial state of the adaptive resource base of the individual, first of all, its psychosocial and individual-psychological components.

Summarizing the obtained results made it possible to identify three main blocks of characteristics that cover a wide range of biological, individual-psychological, social-environmental and psychosocial factors, which we defined as factors/markers of psychological adaptation-maladaptation in patients with dermatological diseases with different levels of vital threat: psychoemotional , psychosocial and personal.

Based on the analysis of determined markers of psychological adaptation-maladaptation using mathematical methods, an algorithm for assessing and predicting psychological maladaptation in this contingent of patients is proposed.

This algorithm determines the criteria of personification, the structure and scope of developed psychocorrective measures at different degrees of risk of psychological maladaptation in patients with dermatological diseases with different levels of vital threat.

A three-stage system of psychocorrective interventions (assessment-diagnostic, clinical-therapeutic, and correction-adaptation stages) has been developed, united by the complexity and continuity of correction, psychotherapeutic, and adaptation measures. At the assessment-diagnostic stage, the prognosis of the development and progression of maladaptation is assessed, which ensures the personification of psychocorrective interventions, which are carried out mainly at the clinical-therapeutic stage, the positive effect of which is fixed at the last, corrective-adaptation stage.

The evaluation of the effectiveness of these measures proved their effectiveness in eliminating psychopathological manifestations (depression and anxiety), improving the quality of life and social functioning, and increasing vitality and resilience.

**Conclusion**. Personalized psychocorrection of patients of dermatological practice with different levels of psychological maladaptation may be recommended for the introduction into health care practice.

**Key words**: **psychosomatic medicine; psychodermatology; vital threat level; psychological maladjustment; algorithm for assessment and prediction of psychological maladjustment; personalized psychocorrection.**

The impact of a somatic disease on a person's mental state has become an indisputable fact today, which is confirmed in numerous studies and testimonies of both representatives of somatic medicine and mental health specialists. The negative consequences of the disease are the appearance of psychopathological symptoms, the development of psychological and psychosocial maladjustment, and mental disorders [6].

Thus, the prevalence of mental disorders among dermatological patients varies according to various studies from 20 to 40%, and comorbid pathology 15-30%. Most often, skin diseases are comorbid with depressive disorders - 59 - 77%, anxiety disorders - 6 - 30%, and personality disorders - up to 57%. A separate group consists of disorders of self-perception - dysmorphophobia and dysmorphomania.

The prevalence of nosogeny over other mental disorders was found in dermatological patients - 71.4% versus 34.6%. People with skin pathology are distinguished by high rates of hypochondriacal development compared to nosogenic reactions - 45.7% versus 25.7%. Among nosogenic reactions, the largest share falls on depressive states - 26.1% and anxiety states - 28.4%, for hypochondriacal developments on masked and overvalued hypochondria - 28.6% and 28.5%, respectively [1; 3-5; 7].

In the language of psychological symbolism, the skin is an organ of contact and interaction with the surrounding world, an indicator and reflection of a person's psychoemotional state. The main psychopathogenic mechanisms in dermatological pathology are:

- damage to visible areas of the skin with the formation of appearance defects;
- persistent unpleasant sensory sensations that are difficult to correct (itching, pain, wetting);
- chronic relapsing course of pathology, often codependent with psychoemotional state and stress level [5].

In addition, among dermatological diseases, there are life-threatening oncodermatological diseases, namely, melanoma, skin carcinoma, basal cell carcinoma, or squamous cell cancer of the head and neck. In such cases, the patient finds himself under the influence of at least two powerful stressogenic factors - welcome existential experiences and psychological and social discomfort from the external manifestations of the disease - which form a vicious circle of pathological interactions, leave an imprint on the patient's mental health and contributes to the development of states of psychological maladjustment [2, 6].

**The purpose of the work:** To justify the algorithm for predicting the state of psychological adaptation - maladaptation of patients with dermatological pathology with

different levels of vital threat, based on which to develop personalized psychocorrection programs for this contingent, and to evaluate the effectiveness of their implementation.

**Contingent and research methods**: Based on the principles of biomedical ethics and deontology, we comprehensively examined 120 dermatological patients who were treated in three branches of the clinic "Dr. Zapolska Clinic" during 2020-2022, namely: 60 patients with non-vital dermatological diseases (seborrheic keratosis L82, condylomas A63.0, angiomas D18.0, pigmentation disorders L80), and 60 patients with dermatological diseases posing a vital threat ( melanoma C43, basal cell carcinoma C44, skin carcinoma in situ D04).

The division into research groups was carried out using two criteria: nosological and clinical-psychological. The presence and severity of signs of psychological maladaptation (PMA) were determined by clinical-psychological and psychodiagnostic methods using the "Nervous-psychic adaptation" test by I. N. Hurvich. According to the results of the preliminary assessment of the mental state, two subgroups (with signs of PMA and without signs of PMA) were distinguished within each nosological group, which led to the formation of 4 clinical groups:

1) with non-vital dermatological diseases without signs of PMA (group 1 - G1), the number of 27 (45.0%) people;

2) with non-vital dermatological diseases with signs of PMA (group 2 - G2), the number of 33 (55.0%) persons;

3) with dermatological diseases which pose a vital threat without signs of PMA (group 3 - G3), numbering 23 (38.3%) individuals;

4) with dermatological diseases which pose a vital threat with signs of PMA (group 4 - G4), numbering 37 (61.7%) people.

Indicators were compared within one nosological group (G1 with G2, G3 with G4) and between subgroups with the same degree of PMA (G1 with G3 and G2 with G4).

The assessment of the clinical component of the adaptation-maladaptation continuum was carried out using the Symptom Check List-90-Revised - SCL-90-R (L. Derogatis et al., adaptation of N.V. Tarabrina, 2001) and scales of depression and anxiety by M. Hamilton (Hamilton Rating Scale for Depression - HRDS, Hamilton Anxiety Rating Scale - HARS) (M. Hamilton, 1959; 1960). Assessment of psychosocial functioning was carried out using the questionnaire of socio-psychological adaptation by K. Rogers - R. Diamond, and the method of assessment of the quality of life by I. Mezzich et al. adapted by N.O. Maruta. Revision of the state of interpsychic sources of adaptation of patients was carried out by assessing the state of personal resiliencetest,vital hardinesstest(according to the native method of S. Maddy,

adapted by D. Leontiev, E. Rasskazova) and resilience (according to the Connor-Davidson resilience scale-10, adapted by O. M. Kokun, 2022), intrapsychic - using the multidimensional scale of perception of social support - D. Zimet's MSPSS adapted by V.M. Yaltonskyi and N.O. Syrota.

**Research results**: Based on the data of our research and the evaluation of actual factors of PMA in patients with dermatological diseases with different levels of vital threat, we scientifically substantiated, developed and implemented in the practice of health care an algorithm for assessing and predicting PMA in this category of patients. The analysis of the obtained data allowed us to identify three main blocks that cover a wide range of biological, individual-psychological, socio-environmental, and psychosocial factors, which turned out to be markers of psychological adaptation-maladaptation for patients with dermatological diseases with different levels of vital threat.

***The first block (psychoemotional)*** is aimed at identifying psychopathological manifestations regardless of their genesis, which allows us to assess and take into account the influence of the current mental state on PMA. The components of this block reveal manifestations of depression and anxiety as the most important factors influencing the development of PMA. To apply our methodology in practice, we recommend utilizing the examination results of the patient using the Hamilton DepressionRatingScale(HDRS) and the Hamilton AnxietyRatingScale(HARS).Meanwhile, in the presence of an indicator on the HDRS scale up to 8 points (absence of signs of depression), the examinee is awarded 2 points, in the presence of an indicator in the range from 8 to 18 points (mild or moderate depression), 1 point is awarded, in the presence of an indicator of more than 18 points (severe or very severe depression) – 0 points. In the presence of an indicator on the M. Hamilton anxiety scale (HARS) up to 18 points (absence of anxiety symptoms), 2 points are assigned, in the presence of an indicator from 18 to 24 points (moderate level of anxiety), 1 point is assigned, in the presence of an indicator of more than 24 points (high-level anxiety) – 0 points. The sum of the points calculated for the assessment of depression and the assessment of anxiety will make up the total indicator for the psychoemotional block. This value can range from 0 points (the worst indicator) to 4 points (the best indicator). When the psychoemotional block indicator value is 4 points, the state of the patient's psychoemotional sphere is assessed as good, when the indicator value is 3 or 2 points - as satisfactory, when the indicator value is 1 or 0 points - as bad (unsatisfactory).

***The second block (psychosocial)*** is aimed at identifying the state of social and psychological support of the patient from his microsocial environment, as well as assessing

the quality of life, which includes the state of physical and psychological functioning, work capacity, interpersonal interaction, socio-emotional, public and official support, personal and spiritual fulfillment, subjective well-being and satisfaction, fulfillment of social roles and external living conditions. We recommend using indicators on the social support scale (MSPSS) and the Mezzich quality of life assessment method in the adaptation of N.O. Maruta. If the value of the indicator on the scale of social support is up to 5 points (low level of social support), the examinee is awarded 0 points, if the value of the indicator is from 5 to 8 points (average level of social support), 1 point is awarded, if the indicator is more than 8 points (high level social support) is awarded 2 points. If the value ofthe indicator based on the I. Mezzich's method of assessing the quality of life adapted by N.O. Marutais up to 3.4 points (low level of quality of life) the examinee is awarded 0 points, if there is an indicator from 3.4 points to 6.6 points (average level of life quality) 1 point is awarded, if there is an indicator above 6.6 points (high level of quality of life) is awarded 2 points. The sum of the points calculated based on the results of the assessment of social support and quality of life constitutes an indicator for the psychosocial block. Its value can range from 0 points (the worst state of psychosocial functioning) to 4 points (the best state of psychosocial functioning). With an indicator value of 4 points, the state of psychosocial functioning is assessed as good, with an indicator value of 3 or 2 points – as satisfactory, with an indicator value of 1 or 0 points – as bad (unsatisfactory).

***The third block (personal)*** is aimed at assessing individual and psychological features that contribute to or hinder the development of PMA. Vitality and resilience are most important in this context. We recommend using S. Maddy's Vitality Test and Connor-Davidson Resilience Scale-10 for assessment. If the value of the indicator on the viability scale is up to 39 points (low level of viability), 0 points are awarded, if the value of the indicator is from 39 to 61 points (moderate level of viability), 1 point is awarded, if the value of the indicator is more than 61 points (high level of viability), 2 points are awarded. At the value of the indicator on the scale Connor-Davidson resilience-10 to 15 points (low level of resilience) the examinee is awarded 0 points, if there is an indicator from 15 points to 30 points (average level of resilience) 1 point is awarded, if there is an indicator of more than 30 points (high level of resilience) 2 is awarded points The total score, calculated based on the results of the vitality and resilience assessment, is the indicator for the personal block; the value of this indicator can range from 0 points (the worst level of personal resources) to 4 points (the best level of personal resources). With an indicator value of 4 points, the state of

the individual's resources is assessed as good (high), with an indicator value of 3 or 2 points - as satisfactory, with an indicator value of 1 or 0 points - as bad (unsatisfactory).

Thus, the total score on the proposed scale can range from 0 points (the worst score) to 12 points (the best score). We recommend evaluating the overall risk of PMA as high if there is an indicator value of 0 to 4 points, as moderate if there is an indicator value of 5 to 8 points, and as low if there is an indicator value of 9 to 12 points.

Generalized data on the ratio of evaluations by methods that form the main blocks and evaluation points of the proposed system are shown in the Table 1.

Table 1.

**Distribution of points for assessing the risk of PMA in patients with dermatological pathology**

| Block name | Indicator level | Indicator according to the appropriate method | Evaluation according to the proposed scale, points |
|---|---|---|---|
| Psychoemotional block | Hamilton DepressionRatingScale (HDRS) | | |
| | Low | 0 - 7 points | 2 |
| | Moderate | 8 - 18 points | 1 |
| | High | 19 points or more | 0 |
| | Hamilton AnxietyRatingScale(HARS) | | |
| | Low | 0 - 17 points | 2 |
| | Moderate | 18 - 24 points | 1 |
| | High | 25 points or more | 0 |
| Psychosocial block | Multidimensional scale of perception of social support ( MSPSS) | | |
| | Low | 0 - 4 points | 0 |
| | Moderate | 5-8 points | 1 |
| | High | 9 or more points | 2 |
| | Mezzich's Scale of assessing the quality of life adapted by N.O. Maruta | | |
| | Low | 0 - 3.3 points | 0 |
| | Moderate | 3.4 – 6.6 points | 1 |
| | High | 6.7 or more points | 2 |
| Personal block | Viability test | | |
| | Low | 0 - 38 points | 0 |
| | Moderate | 39 – 61 points | 1 |
| | High | 62 points and more | 2 |
| | Connor-Davidson Resilience Scale-10 | | |
| | Low | 0 - 14 points | 0 |
| | Moderate | 15 - 30 points | 1 |
| | High | 31 points or more | 2 |

To confirm the correctness of this tool, we conducted a correlational analysis of the results of PMA risk assessment in patients with dermatological diseases, with indicators of

their social-psychological adaptation according to the diagnostic method of social-psychological adaptation C. Rogers et R. F. Dymond (Table 2).

Table 2.

**Results of single-factor non-parametric correlation analysis of indicators according to the proposed method of assessing the risk of PMA and indicators of social and psychological adaptation according to the method of C. Rogers et R. F. Dymond**

| Indicator according to the method of C. Rogers et R. F. Dymond | The value of Spearman's rank correlation coefficient ( $r_s$ ) | P |
|---|---|---|
| Adaptability | 0.771 | 0.000 |
| Maladaptiveness | -0.840 | 0.000 |
| Mendacity: not | -0.145 | 0.115 |
| Mendacity: yes | -0.078 | 0.394 |
| Self-acceptance | 0.703 | 0.000 |
| Self-rejection | -0.694 | 0.000 |
| Acceptance of others | 0.657 | 0.000 |
| Rejection of others | -0.698 | 0.000 |
| Emotional comfort | 0.608 | 0.000 |
| Emotional discomfort | -0.817 | 0.000 |
| Internal control | 0.292 | 0.001 |
| External control | -0.596 | 0.000 |
| Dominance | 0.039 | 0.672 |
| Guideness | -0.752 | 0.000 |
| Escapism | -0.593 | 0.000 |
| Adaptation | 0.876 | 0.000 |
| Self-acceptance | 0.806 | 0.000 |
| Acceptance of others | 0.853 | 0.000 |
| Emotional comfort | 0.785 | 0.000 |
| Internality | 0.807 | 0.000 |
| Striving for dominance | 0.296 | 0.001 |

As shown in the Table. 2, PMA risk indicators according to the proposed method revealed a high level of significant correlations with the main scales of the diagnostic method of socio-psychological adaptation C. Rogers et R. F. Dymond. At the same time, it should be noted that our proposed algorithm for evaluating PMA in patients with dermatological diseases with different levels of vital threat does not duplicate the methodology of C. Rogers and R. F. Dymond, and is not identical to it. The developed algorithm takes into account the influence of three key groups of factors – psychoemotional, psychosocial and personal – on the state of PMA, and it is aimed at identifying and assessing the state of PMA both in general and by these components, which enables the psychologist to identify vulnerable areas and

direct corrective measures measures to influence these areas, which increases the effectiveness and ensures the personalized psychological correction of patients with dermatological pathology with different levels of vital threat.

Below are examples of calculating the risk of PMA in patients examined by us.

**Patient V.K., 42 years old** , a disease with a high degree of vital threat. The indicator on the HDRS depression scale is 19 points, and on the HARS anxiety scale it is 25 points. The index on the scale of social support is 7 points, and on the scale of quality of life 5.3 points. The indicator on the scale of vitality is 55 points, and on the scale of resilience 5 points. Prognostic scores: depression – 0 points, anxiety – 0 points, social support – 1 point, quality of life – 1 point, vital hardiness – 1 point, resilience – 0 points.

Prognostic assessments by blocks: psychoemotional – 0 points (unsatisfactory state of the psychoemotional sphere); psychosocial – 2 points (satisfactory level of social functioning); personal – 1 point (unsatisfactory level of personal resources). Overall rating – 3 points (low indicator). The risk of PDA in this patient is assessed as high. The result of the assessment of adaptation according to the method of diagnosis of socio-psychological adaptation by C. Rogers et RF Dymond is 13 points (the level of socio-psychological adaptation is low).

**Patient G.M.**, 39 years old, a disease with a low level of vital threat. The indicator on the HDRS depression scale is 8 points, and on the HARS anxiety scale it is 19 points. The index on the scale of social support is 12 points, on the scale of quality of life 5.6 points. The indicator on the scale of vital hardiness is 59 points, and on the scale of resilience 30 points. Prognostic scores: depression – 1 point, anxiety – 1 point, social support – 2 points, quality of life – 1 point, vital hardiness – 1 point, resilience – 1 point. Prognostic assessments by blocks: psychoemotional – 2 points (satisfactory state of the psychoemotional sphere); psychosocial – 3 points (satisfactory level of social functioning); personal – 2 points (satisfactory level of personal resources). The overall rating is 7 points (moderate). The risk of PMA in this patient is estimated as average. The result of the assessment of adaptation according to the diagnostic method of socio-psychological adaptation C. Rogers et R. F. Dymond – 37 points (the level of socio-psychological adaptation is average).

**Patient T.K.** , 46 years old, a disease with a low level of vital threat. The indicator on the HDRS depression scale is 5 points, on the HARS anxiety scale, it is 12 points. The index on the scale of social support is 8 points and on the scale of quality of life 7.8 points. The indicator on the scale of vital hardiness is 78 points and on the scale of resilience 34 points. Prognostic scores: depression – 2 points, anxiety – 2 points, social support – 1 point, quality

of life – 2 points, vitality – 2 points, resilience – 2 points. Prognostic assessments by blocks: psychoemotional – 4 points (good state of the psychoemotional sphere); psychosocial – 3 points (satisfactory level of social functioning); personal – 4 points (high level of personal resources). The overall score is 11 points (a high score). The risk of PMA in this patient is assessed as low. The result of the assessment of adaptation according to the method of diagnosis of socio-psychological adaptation by C. Rogers et R. F. Dymond is 68 points (the level of socio-psychological adaptation is high).

Therefore, the specified algorithm was used as a basis for the development of the principles and meaningful content of psychocorrection programs for patients with dermatological diseases with and without a vital threat, regardless of the severity and duration of the underlying disease.

We have identified the following provisions as the basic principles of the proposed psychocorrective interventions.

1. Systematicity and complexity of measures, which is based on an optimal combination of measures of a psychotherapeutic and psychocorrective nature, as well as measures of psychosocial adaptation.

2. Consistency and continuity of psychocorrective measures, which implies their structuring in separate stages and sequential implementation of interventions after achieving the goals of each stage.

3. The individual nature of psychocorrective measures, which involves taking into account individual psychological characteristics, the state of the psychoemotional sphere, the quality of life and social functioning, vital hardiness and resilience of patients.

4. Availability of medical and psychological care for patients with various forms of dermatological pathology.

The goal of psychocorrection of patients with dermatological pathology is the normalization of the psychoemotional sphere, the elimination of depressive and anxiety manifestations, the leveling of signs of psychological maladaptation, the improvement of the quality of life and social functioning, and the increase of vitality and resilience of patients.

We consider the following as the key goals of psychocorrection:

1. creating compliant relationships, forming an adequate attitude to treatment, a conscious desire to follow treatment schemes and recommendations, to cooperate with dermatologists and medical psychologists;

2. elimination of depressive and anxiety manifestations, normalization of the psychoemotional state;

3. improvement of social and psychological adaptation and elimination of manifestations of psychological maladaptation;

4. increasing vital hardiness and resilience of patients, and, as a result, improving the state of the psychoemotional sphere and psychosocial adaptation;

5. improving the quality of life and social functioning of patients.

The proposed psychocorrective interventions, according to our plan, are implemented in three main stages (evaluative-diagnostic, clinical-therapeutic andcorrective-adaptive), united by the complexity and continuity of corrective, psychotherapeutic and adaptive measures. At the assessment-diagnostic stage, the prognosis of the development and progression of PMA is evaluated, which ensures the personification of psychocorrective interventions, which are carried out mainly at the clinical-therapeutic stage, the positive effect of which is fixed at the last, corrective-adaptation stage. The basic psychotherapeutic technologies of the clinical and therapeutic stages are:

1. Psychoeducation, aimed at explaining to the patient the causes and psychological mechanisms of adverse changes in the psychoemotional sphere, ways to overcome them, the specifics of therapeutic and corrective measures that will be used in the treatment process, and ways of interacting with a dermatologist and a psychologist in the treatment process are also discussed for correction of medical measures ;

2. Cognitive-behavioral therapy aimed at controlling automatic thoughts, transforming non-constructive behavior patterns, forming resource models of interaction with others;

3. Family therapy aimed at forming a therapeutic microsocial environment, improving intra-family interaction, increasing psychological support for the patient, reducing stress and improving social functioning;

4. Resilience and vitality training aimed at improving the patient's ability to resist actual stress (including nosogenic stress of a dermatological disease), learning ways to overcome stress, forming a constructive attitude to problems and behavioral strategies aimed at combating stress.

The personification of psychocorrective approaches is carried out taking into account the risk of PMA, both general and by individual blocks - psychoemotional, psychosocial and personal. The criteria of personification, the structure and the volume of psychocorrective measures are given in the Table 3.

Table 3.

**Personification criteria, structure and volume of psychocorrective measures at different degrees of risk of PMA in patients with dermatological diseases with different levels of vital threat**

| **PSYCHOEMOTIONAL BLOCK** | | |
|---|---|---|
| **Psychodiagnostic measures** | **Psychotherapeutic, psychocorrective and psychoprophylactic measures** | **Performance criteria** |
| Good condition | | |
| HDRS Depression Scale;<br>HARS Anxiety Scale | Psychoeducational measures | Absence of depression and anxiety |
| Satisfactory condition | | |
| HDRS Depression Scale;<br>HARS anxiety scale;<br>Depression questionnaire (Beck , Zung , etc.) | Psychoeducational measures<br>Psychotherapeutic correction of depressive and anxiety symptoms (cognitive-behavioral therapy, relaxation techniques, autosuggestive therapy) | Absence of depression and anxiety |
| Unsatisfactory condition | | |
| HDRS Depression Scale;<br>HARS Anxiety scale;<br>Depression questionnaire (A. Beck, Zung, etc.)<br>Methodology for assessing the expressiveness of psychopathological symptoms SCL-90-R | Psychoeducational measures<br>Psychotherapeutic correction of depressive and anxiety symptoms<br>Consultation of a psychiatrist and, if necessary, psychopharmacological correction of manifestations of depression and anxiety | Absence of manifestations of depression and anxiety or a significant decrease in expressiveness of depressive and anxiety manifestations that do not affect the functioning of the patient |
| **PSYCHOSOCIAL BLOCK** | | |
| **Psychodiagnostic measures** | **Psychotherapeutic, psychocorrective and psychoprophylactic measures** | **Performance criteria** |
| High level of psychosocial functioning | | |
| Social Support Scale MSPSS;<br>I. Mezzich's Quality of life assessment methodology adapted by N.O. Maruta | Psychological counseling | Maintaining a high level of psychosocial functioning |
| Satisfactory level of psychosocial functioning | | |
| Social Support Scale MSPSS;<br>I. Mezzich's Quality of life assessment methodology adapted by N.O. Maruta;<br>Diagnosis of the level of emotional burnout | Psychological counseling<br>Family counseling<br>Help in social adaptation | Increasing the level of social functioning to a high level, increasing the level of quality of life |

| | | |
|---|---|---|
| Unsatisfactory level of psychosocial functioning | | |
| Social Support Scale MSPSS;<br>I. Mezzich's Quality of life assessment methodology adapted by N.O. Maruta;<br>Diagnosis of the level of emotional burnout<br>Assessment of the level of social and psychological adaptation | Psychological counseling<br>Family counseling<br>Help in social adaptation<br>Communication training | Restoration of normal psychosocial functioning.<br>Restoration of quality of life.<br>The absence of conflicts in the microsocial environment |
| **PERSONAL BLOCK** | | |
| **Psychodiagnostic measures** | **Psychotherapeutic, psychocorrective and psychoprophylactic measures** | **Performance criteria** |
| High level of personal resources | | |
| Vital hardinesstest;<br>Connor-Davidson Resilience Scale- 10 | Psychoeducational measures<br>Recommendations for increasing stress resistance | Maintaining a high level of vitality and stress resistance |
| Average level of personal resources | | |
| Vital hardinesstest;<br>Connor-Davidson Resilience Scale-10;<br>Coping behavior assessment methodology | Psychoeducational measures<br>Psychological counseling<br>Stress resistance training | Increasing stress resistance and the ability to counteract stress, improving vitality |
| Low level of personal resources | | |
| Vital hardinesstest;<br>Connor-Davidson Resilience Scale-10;<br>Coping behavior assessment methodology;<br>Standardized method of personality inventory (for example MMPI) | Psychoeducational measures<br>Psychological counseling<br>Stress resistance training<br>Individual trainings for personal development and improvement of adaptation | Reducing the level of stress and increasing stress resistance, improving resilience and vitality |

With a total risk assessment of PMA from 5 to 8 points (moderate risk of PMA), in addition to the mentioned measures, it is recommended to conduct group classes in specialized groups consisting of patients with similar nosologies, numbering 5-10 patients. During group classes, the most typical problems faced by patients, peculiarities of psychological response, difficulties in microsocial interaction, etc. are discussed, as well as recommendations for normalization and maintenance of a normal psychoemotional state are provided. With a total score of 0 to 4 points (high risk of PMA), in addition to the measures mentioned above, it is recommended to conduct individual counseling and psychotherapy

sessions with a frequency of 1-2 sessions per week to identify and correct PMA manifestations in various areas.

The recommended periodicity of evaluation measures of intermediate control at a low risk of PMA - at least once every 6 months, at a moderate risk of PMA - at least once every 3 months, at a high risk of PMA - monthly.

Thus, the algorithm proposed by us for predicting PMA in patients with dermatological diseases with different levels of vital threat allows us to determine the criteria for differentiating the volume and content of psychodiagnostic, psychocorrective, psychotherapeutic and psychoprophylactic measures that allow personalizing medical and psychological care for this category of patients.

In order to assess the effectiveness of the proposed measures in accordance with the principles of evidence in medicine, we conducted a comparative analysis of indicators of the psychoemotional state, quality of life, vital hardiness and resilience in patients with dermatological pathology with and without PMA manifestations. For this purpose, two groups were selected among the patients who were under our observation: patients without PMA, numbering 50 (comparison group - CG), and patients with psychological maladjustment, numbering 70 (intervention group - IG). Patients with CG received therapy for the main disease and medical and psychological assistance according to current clinical protocols, and patients with IG, in addition to the mentioned therapy, underwent a course of psychocorrection according to the scheme described above. In the future, 3 patients with CG and 7 patients with IG dropped out of observation due to reasons not related to medical and psychological help (moving outside of Ukraine and stopping dermatological treatment). Thus, the evaluation of therapy results was carried out based on the data analysis of 47 patients with CG and 63 patients with IG. The final evaluation was carried out 6 months after the start of therapy. The psychodiagnostic evaluation toolkit consisted of M. Hamilton's depression scale (Hamilton Depression Rating Scale - HDRS) (M. Hamilton, 1960), M. Hamilton's anxiety rating scale (Hamilton Anxiety Rating Scale - HARS) (M. Hamilton, 1959), method of assessment of the quality of life by I. Mezzich et al. (1999),adapted by N.O. Maruta(2001), vital hardinesstest (according to the native method of S. Maddy, adapted by D. Leontiev, E. Rasskazova, 2006) and Connor-Davidson resilience scale-10. Statistical analysis of differences in quantitative indicators for independent samples was performed using the non-parametric Mann-Whitney test, for dependent - using the Wilcoxon test.

The results of the analysis of the dynamics of psychopathological changes in the affective sphere under the influence of traditional and proposed schemes are shown in Table 4.

Table 4.

**Dynamics of indicators of depression and anxiety in the course of therapy**

| Indicator | The value of indicators, M ± m , points | | | | P | | | |
|---|---|---|---|---|---|---|---|---|
| | CG | | IG | | Comparison before and after treatment | | Comparison between GG and IG | |
| | Before treatment | After treatment | Before treatment | After treatment | CG | IG | Before treatment | After treatment |
| M. Hamilton Depression Rating Scale - HDRS | | | | | | | | |
| General score of depression | 8.34±3.14 | 6.81±2.55 | 14.46±3.72 | 6.49±1.97 | 0.002 | 0.000 | 0.000 | 0.828 |
| Adynamic depression | 6.62±2.45 | 5.23±2.02 | 10.83±3.05 | 5.19±1.81 | 0.000 | 0.000 | 0.000 | 0.643 |
| Busy depression | 3.26±2.05 | 2.79±1.74 | 6.86±2.64 | 2.98±1.37 | 0.095 | 0.000 | 0.000 | 0.416 |
| Depression with fear | 3.47±1.32 | 2.68±1.48 | 6.33±2.58 | 2.51±1.62 | 0.001 | 0.000 | 0.000 | 0.551 |
| Undifferentiated depression | 1.68±1.07 | 1.40±0.90 | 3.87±1.53 | 1.73±1.19 | 0.066 | 0.000 | 0.000 | 0.141 |
| M. Hamilton Anxiety Rating Scale - HARS | | | | | | | | |
| Hamilton anxiety | 13.49±3.12 | 9.83±3.07 | 23.98±6.70 | 9.46±3.86 | 0.000 | 0.000 | 0.000 | 0.397 |
| Mental anxiety | 7.28±1.96 | 6.89±2.06 | 12.76±3.57 | 6.78±3.11 | 0.220 | 0.000 | 0.000 | 0.288 |
| Somatic anxiety | 6.21±2.25 | 2.94±2.33 | 11.22±4.12 | 2.68±2.20 | 0.000 | 0.000 | 0.000 | 0.603 |

A comparison of indicators before treatment revealed that patients with IG had significantly worse indicators of the expressiveness of depression (both the general indicator and the expressiveness indicators of individual types of depression - adynamic, excited, with fear and undifferentiated), anxiety (both general and individual types - mental and somatic), quality of life in all key areas (subjective well-being/satisfaction, fulfillment of social roles, external living conditions, as well as the general quality of life indicator), as well as indicators of vitality (including indicators of involvement, control and risk acceptance) and resilience . At the same time, in patients who participated in psychocorrective measures, in the course of therapy, it was possible to achieve significantly better dynamics in all investigated areas.

As can be seen from the table. 4, positive dynamics regarding depression were found in both groups. Thus, in patients with CG during treatment, the overall depression index decreased from 8.34±3.14 points to 6.81±2.55 points ($p<0.01$). At the same time, in IG patients, the reduction in the level of depression under the influence of correction was

significantly more pronounced: from 14.46±3.72 points to 6.49±1.97 points ($p<0.01$). It should be noted that although in both groups the average depression score after treatment corresponded to the absence of depression symptoms, and no significant differences were found between them, the ratio of degrees of depression changed significantly better in IG patients than in CG patients. Thus, at the beginning of therapy, the majority of CG patients (59.6%) belonged to the group with mild depression, another 38.3% had no signs of depression at all, and only a single case had depression of medium severity, then only 4 8% of patients had no signs of depression, and 36.5% had mild depression, and 47.6% of patients in this group belonged to the group with moderate depression, and 11.1% - with severe depression (Fig. 1). On the other hand, after the course of therapy, 29.8% of patients with CG remained with signs of mild depression and one (2.1%) with moderate depression, while in IG, only 9.5% of patients remained with signs of mild depression after treatment, and 90.5% depression was absent.

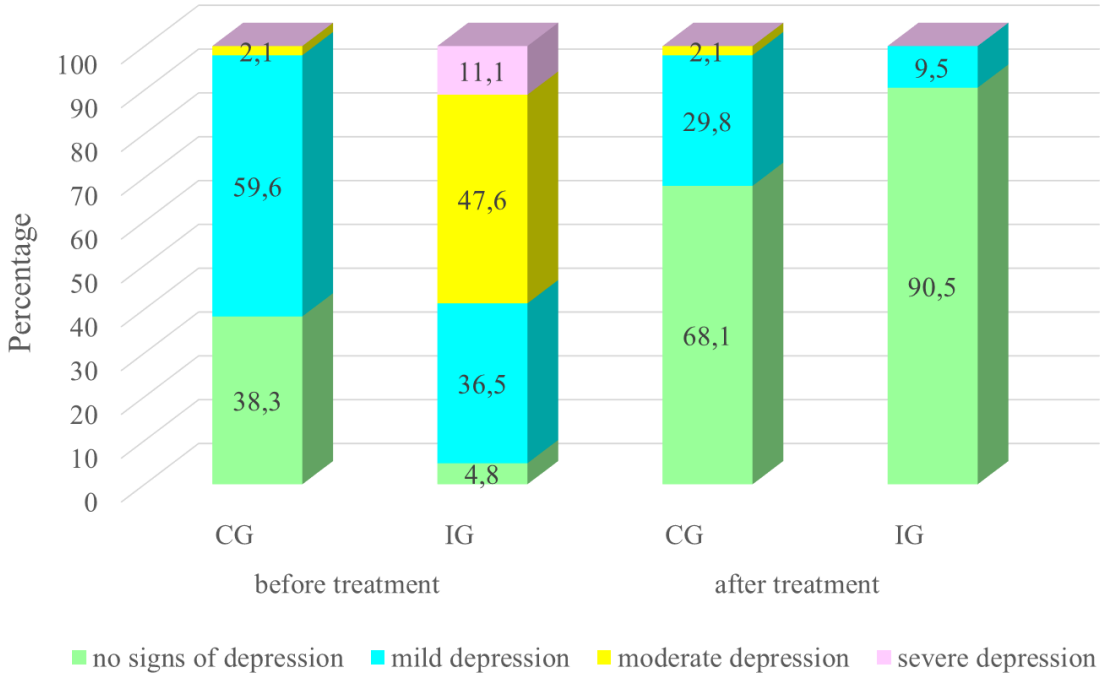


Fig. 1. The structure of depression levels according to the M. Hamilton Depression Rating Scale - HDRSin the dynamics of treatment (the specific weight of patients with a given level of depression in % to the total number of patients in the corresponding group)

In addition to the positive effect on the general expressiveness of depression, the proposed complex system of medical and psychological support proved to be effective for certain types of depression. Thus, the index of adynamic depression in the course of treatment

in patients withCG decreased by 15.7% - from 6.62±2.45 points to 5.23±2.02 points ($p<0.01$), while in patients with IG - more than doubled: from 10.83±3.05 points to 5.19±1.81 points. The decrease in the index of agitated depression in CG patients in the course of treatment was statistically insignificant: from 3.26±2.05 points to 2.79±1.74 points ($p>0.05$), and in IG patients it was significant: from 6, 86±2.64 points to 2.98±1.37 points ($p<0.01$). The index of depression with fear in CG patients decreased significantly less than in IG patients: from 3.47±1.32 points to 2.68±1.48 points ($p<0.01$) and from 6.33±2.58 points to 2.51±1.62 points ($p<0.01$), respectively. The dynamics of the index of undifferentiated depression in CG˟ in the course of therapy was insignificant: from 1.68±1.07 points to 1.40±0.90 points ($p>0.05$), while the index of this type of depression decreased significantly in IG′: from 3.87±1.53 points to 1.73±1.19 points ($p<0.01$).

Similar patterns were also found for anxiety. Even though the anxiety scores of IG patients before the start of treatment were significantly worse than those of CG, after treatment they managed to achieve a lower anxiety score compared to CG. Thus, the general indicator of anxiety in CG patients during the treatment decreased from 13.49±3.12 points to 9.83±3.07 ($p<0.01$), and in IG patients - from 23.98±6.70 points to 9.46±3.86 points ($p<0.01$). At the same time, the decrease in the index of mental anxiety in patients with CG was insignificant: from 7.28 ± 1.96 points to 6.89 ± 2.06 points ($p>0.05$), and in patients with IG - significant: from 12.76 ± 3 .57 points to 6.78±3.11 points ($p<0.01$). The indicator of somatic anxiety in CG patients during the treatment decreased significantly less than in IG patients: from 6.21±2.25 points to 2.94±2.33 points ($p<0.01$) and from 11.22±4,12 points to 2.68±2.20 points ($p<0.01$), respectively. At the same time, the ratio of levels of anxiety in patients with IG in the dynamics of treatment was better (Fig. 2).

For example, if before the start of treatment, 59.6% of CG patients had no signs of anxiety, 34.0% had mild anxiety, 4.3% had moderate anxiety, and 2.1% had severe anxiety, then in patients with IG before the start of therapy, there was an inverse relationship: 58.8% of patients belonged to the group with a high level of anxiety, 19.0% - with an average level, 15.9% - with a mild level, and only in 6.3% cases anxiety symptoms were absent. According to the results of treatment, there were no patients with a high level of anxiety in both groups, in CG there was a single case of moderate anxiety and 6.4% of patients with mild anxiety, and in IG - 6.3% of patients with mild anxiety. In both groups, the vast majority of patients did not show clinically significant anxiety after treatment (91.5% and 93.7%, respectively).

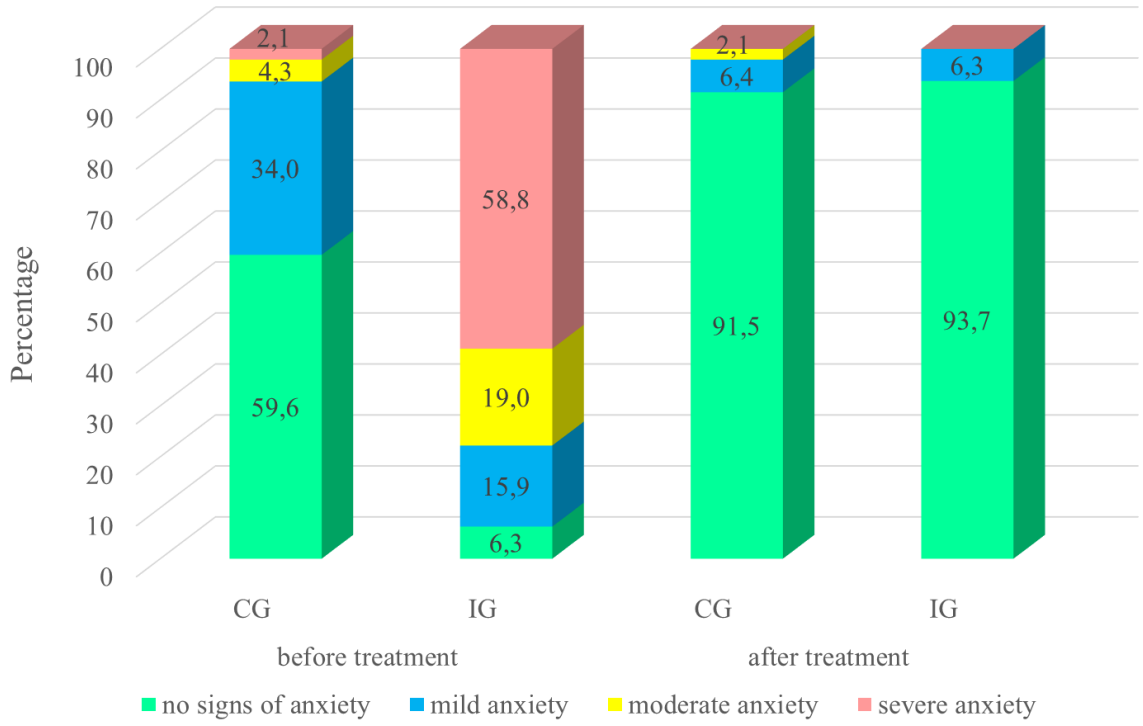


Fig. 2. The structure of anxiety levels according to the M. Hamilton Anxiety Rating Scale (HARS) in the dynamics of treatment (the specific weight of patients with a given anxiety level in % to the total number of patients in the corresponding group)

The proposed system of medical and psychological support turned out to be significantly more effective compared to the traditional one in terms of improving the quality of life (QoL) of patients (Table 5). At the beginning of the therapy, the quality of life in patients with IG was significantly lower than that of patients with CG, however, during the treatment of patients with IG, it was possible to achieve significantly better dynamics. Thus, in CG patients, the quality of life index increased from 7.01±0.72 points to 7.54±0.63 points during the therapy, while in IG patients it increased from 5.53±0.69 points to 7.62± 0.77 points. Although significant ($p<0.01$) positive dynamics of QoL indicators were found in both groups, the increase in QoL indicator was significantly greater in patients with IG.

Positive dynamics were especially noticeable in the key area of QoL - the area of subjective well-being/satisfaction. If in patients with CG in this area the indicator increased by less than 1 point: from 20.09±3.41 points to 20.64±2.77 points ($p<0.01$), then in patients with IG - by more than 7 points: from 14.84±2.68 points to 21.59±2.98 points, and after treatment was significantly better compared to patients with CG. In other key areas of quality of life, the proposed comprehensive scheme of medical and psychological support also demonstrated better dynamics: in the field of fulfilling social roles, the index of CG patients

increased during the course of treatment from 28.17±3.52 points to 30.89±3.34 points ($p<0.01$), and in IG patients - from 22.24±3 .33 points to 30.63±3.78 points ($p<0.01$); in the field of external living conditions - from 21.85±2.34 points to 23.89±2.48 points ($p<0.01$) and from 18.19±2.44 points to 23.97±2.75, respectively points ($p<0.01$).

Table 5.

**Dynamics of quality of life indicators in the course of therapy**

| Indicator | The value of indicators, M ± m , points | | | | P | | | |
|---|---|---|---|---|---|---|---|---|
| | CG | | IG | | Comparison before and after treatment | | Comparison of CG and IG | |
| | Before treatment | After treatment | Before treatment | After treatment | CG | IG | Before treatment | After treatment |
| Subjective well-being/satisfaction | 20.09±3.41 | 20.64±2.77 | 14.84±2.68 | 21.59±2.98 | 0.022 | 0.000 | 0.000 | 0.049 |
| Performance of social roles | 28.17±3.52 | 30.89±3.34 | 22.24±3.33 | 30.63±3.78 | 0.000 | 0.000 | 0.000 | 0.822 |
| External living conditions | 21.85±2.34 | 23.89±2.48 | 18.19±2.44 | 23.97±2.75 | 0.000 | 0.000 | 0.000 | 0.889 |
| General indicator of quality of life | 7.01±0.72 | 7.54±0.63 | 5.53±0.69 | 7.62±0.77 | 0.000 | 0.000 | 0.000 | 0.246 |

An important component of the proposed comprehensive system of medico-psychological support for patients is measures to increase the vitality and resilience of patients. Targeted influence on these important elements of psychological response made it possible to achieve significantly better indicators in patients with IG(Table 6).

Survival rates in IG patients before the start of therapy were low and significantly worse than in CG patients. It should be noted that the use of traditional therapy was also accompanied by a significant increase in vitality, however, in patients who received the proposed scheme, the dynamics of vitality indicators during treatment were significantly better.

It should be especially noted that despite significantly worse initial indicators, after therapy, the level of survival in all indicators was higher in patients with IG than in patients with CG. Thus, the index of involvement increased in the course of treatment in CG patients from 31.02±5.19 points to 31.70±4.86 points ($p<0.01$), while in IG patients the increase was significantly greater: from 23,27±3.96 points to 33.59±3.20 points, and the post-treatment score in IG was significantly ($p<0.05$) better than that in CG. The control indicator also

increased to a greater extent under the influence of the proposed scheme: if in the CG the indicator increased from 28.00±3.90 points to 30.51±3.91 points (p<0.01), then in the IG - from 22, 4±3.01 points to 31.73±6.00 points (p<0.01); at the same time, the level of significance of differences in indicators after treatment between patients with CG and IG was high (p=0.051).

The differences between CG and IG in terms of the risk acceptance index after treatment were somewhat less pronounced, however, and concerning it, better dynamics were demonstrated by patients who received medical and psychological support according to the proposed scheme: in CG patients, the increase in the risk acceptance index was from 13.21±3 .04 points to 16.66±3.13 points (p<0.01), and in patients from IG: 10.38±2.47 points to 17.29±4.30 points (p<0.01) .

Table 6

**Dynamics of indicators of vitality and resilience in the course of therapy**

| Indicator | The value of indicators, M ± m , points | | | | P | | | |
|---|---|---|---|---|---|---|---|---|
| | CG | | IG | | Comparison before and after treatment | | Comparison of CG and IG | |
| | Before treatment | After treatment | Before treatment | After treatment | CG | IG | Before treatment | After treatment |
| Vital hardiness tests | | | | | | | | |
| Involvement | 31.02±5.19 | 31.70±4.86 | 23.27±3.96 | 33.59±3.20 | 0.001 | 0.000 | 0.000 | 0.026 |
| Control | 28.00±3.90 | 30.51±3.91 | 22.40±3.01 | 31.73±6.00 | 0.001 | 0.000 | 0.000 | 0.051 |
| Acceptance of risk | 13.21±3.04 | 16.66±3.13 | 10.38±2.47 | 17.29±4.30 | 0.000 | 0.000 | 0.000 | 0.152 |
| Durability | 72.23±9.44 | 78.87±7.62 | 56.05±4.67 | 82.60±10.61 | 0.000 | 0.000 | 0.000 | 0.024 |
| Connor–Davidson resilience scale - 10 | | | | | | | | |
| Resilience | 28.89±6.89 | 29.32±5.97 | 14.76±7.86 | 31.94±4.65 | 0.180 | 0.000 | 0.000 | 0.038 |

In the course of therapy, the general indicator of vitality in patients with CG increased from 72.23±9.44 points to 78.87±7.62 points (p<0.01), and in patients with IG - from 56.05±4.67 points up to 82.60±10.61 points; moreover, the indicator after treatment was significantly (p<0.05) better in IG patients than in CG patients. It should be noted that in patients with CG, the vitality indicator was within the normal range before the start of

treatment, while in patients with IG, bringing the indicator to a normal level occurred only under the influence of therapy.

Even more significant differences were found when comparing the effectiveness of psychocorrection in relation to resilience. Thus, although in CG patients the resilience index increased during therapy from 28.89±6.89 points to 29.32±5.97 points, this increase was not statistically significant ($p>0.05$). On the other hand, in patients with IG, under the influence of treatment, there was a more than two-fold increase in the resilience index: from 14.76±7.86 points to 31.94±4.65 points ($p<0.01$).

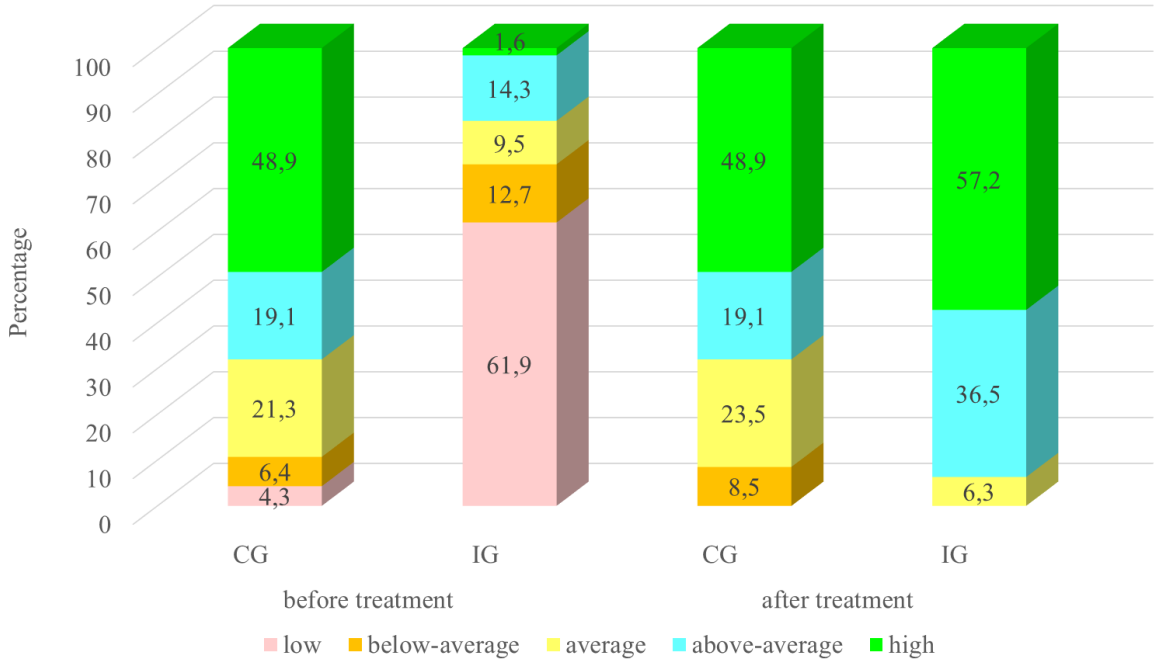


Fig. 3. The structure of resilience levels according to the Connor–Davidson resilience scale-10 (Connor–Davidson resilience scale-10) in the dynamics of treatment (the specific weight of patients with a given level of resilience in % to the total number of patients in the corresponding group)

The significantly better impact of psychocorrective measures on resilience is confirmed by the analysis of the dynamics of resilience levels in the course of therapy (Fig. 3). Thus, before the start of treatment, a high level of resilience prevailed in CG patients (48.9%), the specific weight of patients with higher than average (19.1%) and average (21.3%) levels was also significant, while the specific weight of patients with below-average and low levels of resilience was insignificant (6.4% and 4.3%, respectively). On the other hand, the reverse pattern was observed among patients with IG: the majority (61.9%) were patients with a low level of resilience, 12.7% had a lower than average level, and 9.5% had an

average level. Only 14.3% of patients in this group had a higher than average level of resilience before the start of the intervention, and only one (1.6%) had a high level of resilience.

In the course of treatment at the CG, the specific weight of individuals with high and above average levels of resilience did not change; the specific weight of patients with an average level slightly increased (up to 23.5%), and patients with a low level moved to the group with a lower than average level (8.5%). On the other hand, under the influence of treatment, there were no patients with low and below-average levels of resilience in IG, the proportion of patients with average levels decreased to 6.3%, and patients with above-average and high levels increased to 36.5% and 57,2% respectively. It should be noted that a total of 93.7% of IG patients demonstrated high and above-average levels of resilience at post-intervention, with a greater proportion of patients with these levels post-intervention in IG than in CG.

**Conclusion**. Thus, the application of personalized psychocorrection measures, based on the use of the PMA prediction algorithm in patients with a dermatological profile with different levels of vital threat, proved its effectiveness in eliminating psychopathological manifestations (depression and anxiety), improving the quality of life and social functioning, and increasing vitality and resilience. This gives us reasons to recommend it for implementation in health care practice.

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The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee), (7.11.2021).

**Informed Consent Statement**

Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement**

The data presented in this study are available on request from the corresponding author.

**Conflicts of Interest**

The authors declare no conflict of interest.

Вклад автора

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Вся информация находится в открытом доступе, и данные по этому конкретному пациенту могут быть получены по запросу у соответствующего старшего автора.

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**Authors' contribution**:

All authors note an equal contribution to the conception, writing and approval of the article. The authors have read and approved the published version of the manuscript.

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**Informed Consent Statement**

Written informed consent for the processing of personal data and their further use was obtained from the patients participating in the study.

**Data Availability Statement**

All information is publicly available, data on a specific patient can be obtained upon request from the leading author

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**Author Contributions**

Conceptualization, methodology, formal analysis, data curation, supervision – *V. M. Lisovy,* writing—original draft preparation - *R. Y. Semchyshyn.* All authors have read and agreed to the published version of the manuscript.

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The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of the Kharkov National Medical University (protocol No. 124 from 02.02.2017) **Informed Consent Statement**

Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement**

The data presented in this study are available on request from the corresponding author.

**Conflicts of Interest**

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