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© Mariya V. BOGDANOVA, Vitaliy A. DUDIN

*bogdanova-mv@yandex.ru*

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### **DEVELOPMENT OF A DIAGNOSTIC TECHNIQUE OF PERSONAL LIFE SUPPORT LOCUS**

*SUMMARY. This article deals with the model of life-support of a person and the development procedure of a test of the locus of personal life-support is considered. The development stages, techniques and reliability checks are described.*

*KEY WORDS. Life-support system, diagnostics of a locus of life-support, psychometric check, test.*

A man's life is in the center of intrapersonal dynamics and objective situations that are aligned for a problem: the crisis of middle age, of the empty nest; conditions requiring action, such as the choice between love and duty, the choice between high income and the "simple life", chronic stress situations, leading to emotional burnout, conflict at work or in the family. The successful resolution of these problems depends on the resources a person can muster, on the level of his personal life-support. Some situations are considered as threats and must be defended against (common for people who have dominant psychological defense mechanisms), other situations may be perceived as an opportunity for personal growth (common for people with good development of protective-adaptive mechanisms). The problems of adaptation and success are extremely real for modern people in the positive and negative aspects. Adaptation disorders as a result of technological and urban society, the increase in the speed of information flow, disorders of the ecological environment and nutrition lead to many social, health and economic issues, costing billions of dollars. The problem of success became very popular with the appearance of the Western ideology of career, achievements, and finds its reflection in the great popularity of various training programmes, seminars, and specialized literature devoted to success.

In psychology there are attempts at integral approaches to personal characteristics that may not be attributed to the complex of intellectual qualities, character and temperament, which help a person adapt and cope with living conditions. The following concepts are identified: personal potential (D.A. Leontiev), "Hardiness" (S. Muddy) [1], "Personal adaptive potential" (A.G. Maklakov), "Subjective vitality as a personal resource" (L.A. Alexandrova) [2].

M.V. Bogdanova and E.L. Dotsenko offer to consider this issue from the point of view of a personal life-support system (henceforth PLSS), which is the adaptation of

resources of different levels: physical responses, psychological defenses, coping strategies, and higher personal resources [3].

At present there is no specialized technique to identify a locus of life-support. Diagnosis of the expression of levels is only possible with the help of a battery of tests. So, for a level of physical response there is no specific methodology, and we have to utilize a variety of tests: the Toronto alexithymic scale, Beck's questionnaire, the Giessen questionnaire of somatic complaints, self-test of the differential functional state (DFS), the scale of reactive and personal anxiety by Spielberger-Hanin. Diagnosis of psychological defenses is mainly made with the lifestyle index test by R. Kellerman and G. Plutchik and with various projective techniques. The tools for the diagnostics of coping were designed a little better: the coping test by R. Lazarus and S. Folkman, the methodology of E. Heim, an indicator of coping strategies by D. Amirkhana, the questionnaire of coping strategies by Charles Carver. There are two ways to diagnose higher personal resources, the first: to diagnose complex resources (personal potential, adaptability), the second: to diagnose individual resources (locus of control, life-purpose orientations). As practice shows, these different methodologies are poorly compared. Creating integrated diagnostics of a locus of personal life-support will clarify and specify the concept, further studies in this area, and will allow to consolidate the concept of "personal life-support system" in the professional language and in the minds of psychologists.

**The objective:** to develop diagnostic techniques of the locus of personal life-support.

**The procedure of the developing of methodology** [4].

The method is based on the assumptions that the level of resource support differs for each person. The difference lies in the predominance of the resources of one level over the other resources.

**Operationalization of constructs.**

A list of diagnostic constructs is based on PLSS and consists of four scales [3]:

*The level of psychosomatic response* is mainly characterized by somatic responses (psychosomatic illness) to the difficulties in a person's life.

*The level of psychological defenses* is characterized by unconscious defense mechanisms that are used for protecting the integrity of the desirable self-concept in the context of the difficulties due to the distortion of objective reality.

*The level of coping strategies* is characterized by a personal desire to overcome difficulties consciously without distorting existing reality. This level is characterized by active adaptation to life conditions.

*The level of higher personal resources* is characterized by creating the surrounding world of a person (the acquisition of new self-development, personal growth) besides overcoming difficulties.

To design the stimulus material the characteristics of life support, which are qualitatively transformed from level to level (emotional sphere, cognitive sphere, behavioral sphere, health sphere) of a person were identified.

Before the pilot survey, each test item was assessed by a peer review of psychologists practicing in the areas of psycho-diagnostics and resourced personal maintenance. The experts were the staff of the Institute of Psychology and Pedagogy of TSU. The experts were asked to estimate the structure of the questionnaire and operationalized constructs, which were correlated with the relevant paragraphs of the test (Table 1).

Table 1

The initial structure of the questionnaire "A locus of life-support"

Levels of SAN	Psychic spheres				Statements according to SAN
	Emotional	Cognitive	Behavioural	Bodily	
Psychosomatic response	20	15	19	16	71
Psychological defenses	19	15	15	15	64
Coping strategies	16	16	18	15	62
HPR	22	19	18	16	72

#### **Level of psychosomatic response**

**Emotional sphere.** *Low differentiation of emotional states, limited repertoire of emotional response, anxiety, depression, aggression, alexithymia.* Examples of statements: When I'm upset, I do not know whether I am sad, scared or angry (Toronto alexithymatic scale); I am seized by strong anxiety when I think of my affairs and concerns ("Anxiety scale" by Charles Spielberger); I get tired without any reasons (depression scale by Zung).

**Cognitive sphere.** *Rigid thinking, lack of imagination, the prevalence of visual-thinking, weakness of categorization and symbolization functions, alexithymia as reduced ability for symbolizing, imagination, a tendency towards concrete, utilitarian, logical thinking with a deficit of emotional reactions.* Examples of statements: I understand much better when objects or pictures are explained to me ("Type of thinking" by G.V. Rezapkin), I dream rarely (Toronto alexithymatic scale); Life is a series of black and white stripes.

**Behavioral sphere.** *Low ability to change the rules of interaction under varying circumstances, a tendency to avoid expression of disagreement and talking openly about conflicts, inability to verbalize conflicts, low spontaneity, lagging of emotional-volitional sphere, fast fatigue from activities requiring willpower, instability of interests; inconsistency in statements and actions; insufficient independence.* Examples of statements: I work better when someone directs the process; nevertheless I never take risks; instead of making a remark, I say nothing.

**Bodily response.** *For practical purposes, more often the system of correlation of psychosomatic disorders with the main organs and systems of the human body: cardiovascular, digestive, skin, uro-genital, and reproductive systems.* Statements: My heart is sometimes "naughty", I feel pressure in my stomach sometimes, I feel dizzy more often than other people ("Giessen's questionnaire of somatic complaints").

**Level of psychological defenses**

**Emotional sphere.** *Anxiety superego as instinctual manifestations are banned in society. Objective anxiety that occurs under the influence of real threats in the outside world. An instinctive anxiety in which one feels the fear of being depressed and destroyed. Distorted emotions as a result of protection.* Statements: I do not like it, I am often told that I am quick-tempered (PDT of V. Melnikov, L. Yampolsky), there are things or situations that are terrible for me.

**Cognitive sphere.** *I struggle with instinctive manifestations and external frustration is realized by such means: the displacement of meaning, criticism of thoughts, omission or rearrangement of association; neglect, "crowding out" of thoughts, rationalization of feelings, projection of unpleasant thoughts and desires onto other people.* Statements: From my childhood, I almost remember nothing (PLSS), I think that people around me have more disadvantages than advantages, I prefer to talk more about my thoughts than about feelings (PLSS).

**Behavioral sphere.** *The person forgets that objectively he can remember, does not perceive (does not believe, denies) obvious facts; he is impulsive, behaves inappropriately for his age, finds negative features in people surrounding him, tells them about it; shows aggression, hostility, complains to people whom he considers safe; gets into philosophical arguments which are very long, suppressing manifestations of emotion.* Statements: I forget about the important things in life, if everything annoys me, I rip on my relatives, I have obsessive habits (clicking my fingers, twitching eyes, frequent hand washing, etc.).

**Bodily response.** *Psychosomatic symptoms with no physiological grounding, i.e. the symptom is a functional disorder, which means in psychoanalytical terms conflict between the ego and the superego (conversion and dissociative disorders, hypochondria). Secondary acquisition of illness.* Statements: When I feel agitated, I feel a lump in my throat (clinical questionnaire for the identification and evaluation of neurotic states); My illnesses often disappear by themselves, illness always strikes me at the most crucial moment.

**Level of coping strategies**

**Emotional sphere.** *Adaptive emotions: active indignation and protest towards difficulties and at the same time willingness to fight for one's interests; confidence in having access to any, even difficult situations, the discharge of feelings, emotional stability. Nonadaptive emotions, charge of oneself, hiding feelings.* Examples of statements: I usually try not to show my feelings (Lazarus Coping-test) I know how to discharge emotions in order to enjoy things (coping behavior in stressful situations (S. Norman, D.F. Endler, M.I. Parker, Adapted variant by T.A. Kryukova)); Sometimes I blame myself, even when I'm innocent.

**Cognitive sphere.** *"The problem-oriented style of reaction": an independent analysis of events, calling for others' help, seeking additional information. The initial assessment of stress is the question, "what does it mean to me personally?". Secondary cognitive assessment is considered to be critical and is expressed in the question, "what can I do in this situation?", one's own resources and personal factors are*

*assessed.* Statements: to solve difficult problems I need a plan of action (Lazarus Coping-test); in difficult situations to remember people whom you respect, and act like them (Lazarus Coping-test); in difficult situations I mentally scroll the actions in which I can succeed.

**Behavioral sphere.** *Distraction, altruism, active avoidance, compensation, constructive activity, retreat, partnership treatment.* The questions: I plunge into my favorite tasks, trying to forget about difficulties, sometimes I try to be alone with myself, to be isolated; If I feel bad, I discuss it with others, and I feel better (Lazarus Coping-test).

**Bodily response.** *Possible single, isolated reaction to specific stressful situations. No psychosomatic disorders, a person consciously controls bodily reactions, positive and harmonious relationship to his body and health.* Statements: I use self-hypnosis to bring my pulse and breath back to normal, my health fails me only in stressful situations; I need to take care of my health in order not to be distracted by treatment.

#### ***Level of higher personal resources***

**Emotional sphere.** *Diversity of emotional experience, a positive attitude towards oneself, wealth, rich emotional experiences; acceptance of oneself, people, the world as they are; mostly positive, friendly attitude to peers, and the ability to experience new emotions, the ability for great experiences, and the ability to empathize, the ability to emotionally perceive the world, nature and art [5].* Statements: I live with a feeling of complete happiness (FCH); I know how to have a wide range of positive emotions, such as internal growth, fun, happiness, humor (Emotional Intelligence (Hall)); As a rule, I feel the importance of the present moment in spite of past and future (Emotional Intelligence (Hall)).

**Cognitive sphere.** *The ability for intellectual work (a change of attitude to life situations with alternative interpretations); willingness for actions to overcome uncertainty, the belief that involvement in events gives the maximum opportunity to find something worthwhile and interesting for the individual, the desire to control one's life and manage it, conviction that everything that happens promotes development by knowledge derived from experience, negative or positive.* Statements: I am always confident that I can bring to life what I have imagined (test of hardiness); Difficulties exist for reopening of yourself (FCH), something important (FCH); in any negative situation there is my contribution.

**Behavioral sphere.** *Conscious spontaneity of behavior, readiness for changes in changing situation; lack of behavioral stereotypes; the presence of self-experience, including the experience of overcoming unfavorable situations; openness to new experiences; the ability to learn new strategies for behavior in different situations, and the ability to cooperate and communicate.* Examples of statements: If I help a person, I sincerely do not expect anything in return (FCH), I willingly undertake to implement new ideas (test of hardiness), I change something in myself when I need to (FCH).

**Bodily response.** *Psychosomatic reaction is not abnormal and found in healthy people in the form of short-term physiological responses such as increased heart rate, increased blood pressure, changes in frequency and depth of breathing, disruption of defecation, etc. It's important: a calm attitude to psychosomatic reactions does not reach the critical point, it disappears after understanding its value, absence of repeated responses in similar situations, focus a person's thoughts not on the symptom, but on its meaning.* Statements: I wake up full of energy, my body "warns" me that I am doing something wrong, I am happy with my health.

After expert assessment of the validity in the questionnaire 112 statements remain.

#### **Psychometric check**

This research was done in Tyumen and the Tyumen region. In the pilot study 50 people between the ages of 18 to 60 took part. The methodology contained 112 statements. Statistics were calculated for each item of the test: 1) index of difficulty, optimal values must be in the range from 16% to 84%; 2) index of discrimination, optimal values must be in the range from 0,25% to 0,75% [6].

The second form had 60 checked statements. In the study based on this form, 266 people took part. The representative choice was done according to the National Population Census in 2010. Then, all of the test items were proved by factor analysis of the test scales.

#### **The results of factor analysis of the questionnaire**

The results of factor analysis: the adequacy of the criteria, the percentage of dispersion and the load factor values are reflected in Table 2-4.

Table 2

#### **Bartlett's measure of adequacy and criteria**

Kaiser-Meyer-Olkin's measure of selective adequacy		,764
Bartlett's sphericity criterion	Approx. chi-square	4127,955
	St.sv.	1596
	Val.	,000

Kaiser-Meyer-Olkin's measure of selective adequacy is more than 0.4 and Bartlett's sphericity criterion is statistically significant, which allows considering the data as suitable for factor analysis.

Table 3

#### **Full explanation dispersion**

Factor	Sums of squares of rotation loads		
	Total	% Dispersion	Cumulative %
1	3,990	7,000	7,000
2	3,578	6,277	13,277
3	3,405	5,973	19,250
4	2,815	4,939	24,189

Table 4

Matrix of rotated factors\*

Factor 1		Factor 2		Factor 3		Factor 4	
Psych_4	,678	PD_15	,568	HPR_1	,614	Cop_11	,624
Psych_12	,577	PD_5	,506	HPR_10	,599	Cop_4	,574
Psych_10	,545	PD_14	,494	HPR_4	,580	Cop_8	,540
Psych_5	,542	PD_12	,489	HPR_2	,541	Cop_7	,468
Psych_3	,491	PD_11	,467	HPR_5	,530	Cop_6	,459
Psych_13	,482	PD_6	,457	HPR_12	,497	Cop_3	,436
PD_16	,475	PD_1	,448	HPR_13	,447	Cop_5	,387
Psych_14	,468	PD_13	,447	HPR_9	,431	Cop_10	,318
Psych_2	,395	PD_9	,430	HPR_11	,414	Cop_12	,309
Psych_1	,383	PD_10	,426	HPR_7	,392	Cop_14	,247
Psych_15	,355	PD_7	,405	HPR_3	,372	Cop_15	,235
Psych_7	,329	PD_3	,381	HPR_14	,365	PD_2	,225
Psych_11	,307	PD_4	,329	HPR_8	,283	HPR_2	,219
Psych_9	,288	PD_8	,321	HPR_5	,245	Psych_7	,208
Psych_8	,260	PD_2	,298	HPR_12	,202	HPR_5	,204

Thus, four factors were identified which can be characterized according to the declared scales: the level of psychosomatic response (factor 1), the level of psychological defenses (factor 2), the level of coping strategies (factor 4), and the level of higher personal resources (factor 3). At the same time, the factors of the level of psychosomatic response and the level of psychological defenses are the most important loads, which is probably explained by the questions of these scales being the most distinct and appropriate to the diagnosed constructs, and the constructs being well thought-out. It is evident that in factor 4, integrating coping diagnostics, there are statements from other levels: psychological defenses (question 2: “My arguments eventually led me away from the essence of my problem”—the variant of unconstructive coping), psychosomatic response (question 7: “Sometimes I have chest pain”) and even higher personal resources (questions 2 and 5: “I feel exhilaration” and “I willingly embody new ideas to life”). Therefore, these statements, in spite of the experts’ opinion, should be attributed not to the stated levels, but only to the level of coping.

#### The results of the factor analysis on the participants

To test the assumption that there are leading levels of personal support for everyone, factor analysis was carried out on the participants. It was assumed that the selected factors would correspond to those which were got in the factorization of the statements, that is, people who have a dominant higher level of resources would be in one factor;

\* The abbreviations in the table: Psych—a statement, referring to the level of a psychosomatic response, PD—to the level of psychological defenses, Cop—to the level of coping, HPR—to the level of higher personal resources.

people who have a dominant psychosomatic response in another, etc. The leading level of PLSS for each participant was determined as follows: one of the levels had to be at least more than 2 points of anything, and if this condition was not observed, then the participant would be defined as a diffused type. As a result of factorization, people were divided into five factors, which were varied according to the leading level. The first factor included the participants with a higher predominance of personal resources, the second with predominance of the psychosomatic response, the third with predominance of psychological defenses, the fourth with a majority of coping-strategies, and the fifth of the diffusive type. The results are shown in Fig. 1.

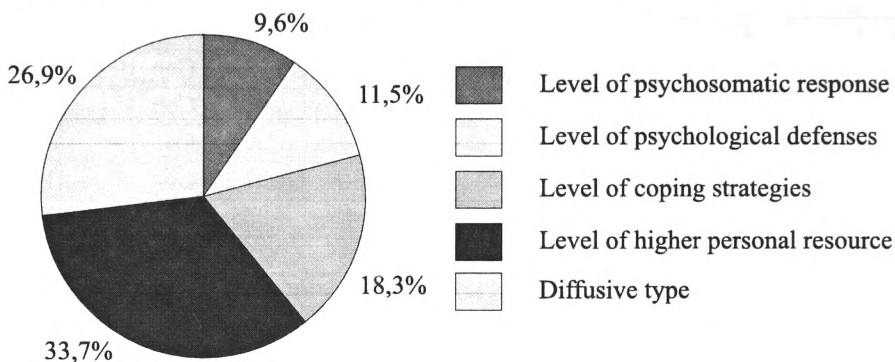


Fig. 1. Types of the participants according to the leading level of PLSS

To determine how “clear” the types are, the participants with a certain leading level were found in the relevant factors. The results are shown in Table 5.

Table 5

**Comparison of the participants in the factors and according to the leading level**

Factor	Percentage of the participants who have the leading level corresponding to the factor
Level of psychosomatic response	100%
Level of psychological defenses	91%
Level of coping strategies	87%
Level of higher personal resources	63,7%
Diffusive type	92%
Final percentage of matching of the leading level of factors	93%

Thus, the most distinctive types were the types with the leading levels of: psychosomatic responses, psychological defenses and coping. The least definitive type is with a leading level of higher personal resources. This is comparable with the results of the factor analysis carried out on the test statements. These results suggest further correction of the test statements, diagnosing HPR.

The final form of the test includes 56 statements, 14 statements for each scale.



### **Conclusion**

In the development and psychometric check of test development “A locus of life-support”, the assumption of a 4-level structure of PLSS is confirmed. As a result of the factor analysis, four factors have been clearly identified with the most relevant statements, diagnosing appropriate levels of PLSS.

The factor analysis of test development according to the participants also showed a clear division of the participants into groups based on the level of the leading HPR. 5 types of participants: “Psychosomatic responses”, “Psychological defenses”, “Coping”, “HPR”, “Diffusive type” were identified.

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