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Russian Psychological Journal

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Sensitivity to the Focusing Significance of the Gaze Direction of the Partner at Mentally Retarded Preschoolers

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Abstract

Introduction. The relevance of the study of communication between the mechanism of joint attention and the subsequent normal and abnormal development of the child has been substantiated. It has been shown that a child's ability to initiate and react to a joint attention of an ontogenetically precedes emergence of social and cognitive abilities. It has been determined a role of the joint attention in the child's ability to integrate information on himself, on other person and ability to unite his own intentions and other person's intentions. The problem of need for solution to a question of how the cognitive development of the child interferes with development of social experience of the child has been raised.

Methods. Sample group was made by 514 children of preschool age, including the children with developmental disorders which characteristic of different forms of mental retardation. In the section there are descriptions of some techniques: 1. "Wrong opinion test", "Sally-Ann"; the task "What does Charlie want?", etc. for assessment of children's understanding of intentions, desires, the interests of others according to behavioural manifestations. 2. The developed task for assessment of ability of using the gaze direction of the character on the picture for the purpose of determination of its intentions. 3. Neuropsychological tests for a research of the block of reception and processing of information.

Results. Potential mechanisms of integration disorder of the joint attention, decrease in recognition of the focusing value of the gaze are revealed. The variability of formation and age changes of joint attention skills, to be exact, existence of differences in recognition, synthesis and interpretation of the focusing social information proceeding from eye contact is shown. It is revealed that children with a developmental delay have a low level of the "descending" joint attention. The parallelism of early deficiency of joint attention and difficulties of processing of information is revealed.

Discussion. The data display synchronism of cognitive development and formation of the mechanism of the joint attention. The conclusion is drawn that difficulties of integrative function of processing of social information can be combined with difficulties of synthesis of separate information signs in a Gestalt, complex information fusion, subject and symbolical orientation in space.

Keywords

theory of mind, attention, joint attention, social cognition, orienting basis of an action, developmental age, preschool age, theory of reason, autism, developmental delay

Highlights

- ▶ Symptom expression of joint attention disturbances through determination of intentions in the gaze direction is connected with standard age formation of the child and it is moderated by cognitive functioning.
 - ▶ Difficulty in social information processing can be connected with prevalence of the “ascending” joint attention at children with a developmental delay which is based on information on concrete perceptual characteristics of incentives and decrease in the “descending” joint attention connected with a semantic context of the triadic relations.
 - ▶ Difficulties of processing of social information can be combined with difficulties of processing and complex information fusion.
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Introduction

At the present stage we refer such disorders of theory of mind as deficiency of the joint attention mechanism to disorders of early social interaction (Bruner, 1985). The empirical data are gained which show that children with an atypical development experience difficulties in regulation of other person's attention and ability to trace the directions of focus of attention; they do not use protodeclarative indicatory gesture to share the interest with other person. It is shown that people with deficiency of theory of mind can perceive information relating to people's behavior (the direction of a gaze, the movement of a body, facial expression), but they did not create the mechanism which will allow them to interpret and understand further sense of this information (Baron-Cohen, 1989). It is possible to state two aspects of disorder of development of orientation in social signals: a possibility to initiate and react to attraction of joint attention as well as interpretation of the focusing social signals as aspect of the formed theory of mind (Perner, 1989; Baron-Cohen, Leslie, & Frith, 1985; Flavell, 2000; Sergienko, Lebedeva, & Prusakova, 2009; Wellman, Cross, & Watson, 2001; Russell & Sharma, 2003; Tomasello, Carpenter, Call, Behne, & Moll, 2005). According to the author, this deficiency is caused by inability to fast refocusing followed by destroying the corresponding experience and the basis which is necessary for normal development of representation (Perner, 1989).

But practically all the theories perceive theory of mind as the isolated line of development, but not within the general standard developmental age (Hobson, 2005; Gopnik, Capps, & Meltzoff, 2000; Perner, Frith, Leslie, & Leekam, 1989). In our opinion, previous research works still were conducted, generally on children of an infantile and early age, and assessment of their skills of joint attention during the different periods of their developmental age remains poorly studied. Research of the later stages of development of preschool children will be the key for understanding of orientation of influence between joint attention and social and cognitive development.

In a number of research works the analysis of connection of intellectual level of development and development of theory of mind on children with autism spectrum disorders and children with

reduced intelligence is carried out. At the same time an unresolved, in our opinion, problem is the fact that there remains a little systematized data in the sample of children with the diagnosis of a developmental delay.

The research work by G. E. Sukhareva, V. V. Kovalyov, K. S. Lebedinskaya, T. A. Vlasova, V. I. Lubovskaya, N. A. Tsykina, V. V. Lebedinsky and F. M. Gayduk show that the developmental delay has various manifestations in its causation, in pathogenesis and clinical findings as well as specific dynamics of a easy condition of intellectual incapacity which are intermediate between intellectual norm and mild mental deficiency (Yemelina & Makarov, 2018; Zlokazova, 2004; Lebedinskaya, 2005; Skvortsov, Apeksimova, & Petrakova, 2002; Shumskaya, 2013). In turn, the severity of a developmental delay characterizes extent of decline in cognitive capabilities, discontinuity of structure of intellect. At the same time, the developmental delay is included into the group of psychosocial associated disorders (Shumskaya, 2013). In this regard it becomes possible to track an intelligence role in development of preschoolers' understanding of theory of mind in the group of children with a developmental delay.

In our opinion, understanding of mechanisms of formation of a mental sphere delay both due to emotional-volitional maturation delay and due to the neurodynamic disorders which are slowing down development of cognitive activity (Yemelina & Makarov, 2018; Lebedinskaya, 2005), it also opens a possibility of a simultaneous research of continuity of development between joint attention and social and cognitive abilities in the early childhood.

The hypothesis that the deficiency which is the cornerstone of disorders of joint attention happens because of an excessive delay in development needs check (Frith, 1988). The research of decrease in orientation to social signals (first of all, by sight for establishment of episodes of joint attention) at children with a developmental delay will display a specific disorder of both social and cognitive phenomenon and will disclose not only aspect of cognitive development (what many researches on this selection are devoted to), but also aspect of the communicative disorders interfering standard developmental age.

Development deficiency theory for theory of mind

At a typical developmental age, the joint attention arises after the increasing ability of the child to integrate information on itself, on other person and on association of the intentions and other person's intentions in relation to an external object or ability to focus the attention against each other (the triadic relations) (Hobson, 2005; Charwarska, Klin, & Volkmar, 2003). Besides, the individual has to realize the fact that focus is divided among themselves and other person (Hobson, 2005; Chen, Castellanos, Yu, & Houston, 2019).

Experimental data by S. Baron-Cohen show that the deficiency of visual joint attention is a consequence of deeper disorder of the general attention mechanism at autism and it involves disorders in development of theory of mind: triad representations cannot be constructed (Self – Another – the Object) (Baron-Cohen, 1995; Baron-Cohen, Leslie, & Frith, 1985; Bora & Pantelis, 2013; Mundy, Sullivan, & Mastergeorge, 2009; Hobson, 2005). The main fundamental manifestations of the joint attention which can be broken are selected: actually, maintenance of visual contact and shift of a gaze between the gaze direction of the social partner and any object (Broz, Lehmann, Nehaniv, & Dautenhahn, 2013; Dejan, 2006). The main disturbance is shown in the child's difficulty to orientate oneself to the same general direction (in the eye span) both on other person and on the shared object of interaction (Dawson & Burner, 2011; Dawson & Levy, 1989). Children also cease

to fixate on the first interesting (noticeable) object which they are faced with (Dawson & Burner, 2011; Dawson, Jones, & Merkle, 2012; Dawson, & Levy, 1989). The main disturbance is shown in the child's difficulty to orientate oneself to the same general direction (in the eye span) both on other person and on the shared object of interaction (Dawson & Burner, 2011; Dawson, & Levy, 1989). Children also cease to fixate on the first interesting (noticeable) object which they are faced with (Dawson & Burner, 2011; Dawson, Jones, & Merkle, 2012; Dawson & Levy, 1989).

Thus, the standard child development assumes formation and expansion of more complex behavior, such as correction of direction of gaze when the initial gaze of posteriority for a social partner was not successful, ability to the look after gaze direction of adults (Dawson & Levy, 1989) that reflects understanding of others as deliberate participants of interaction (MacPherson & Moore, 2007; Slone et al., 2018; Suarez-Rivera, Smith, & Yu, 2019; Yu & Smith, 2017).

Research of the joint attention is concentrated on standard regularities of emergence of joint attention deficiency: identifications as such skills are connected with the subsequent child development (Kasari, 1990; MacPherson & Moore, 2007; Delgado et al., 2002), with formation of the generalized "symbolical abilities" (Hobson, 2005; Lewis & Bouche, 1988; Mundy, Sullivan, & Mastergeorge, 2009; Leslie, 1987) and the general social and cognitive processes at children (Dawson & Levy, 1989; Bruner, 1985; Jayaraman, Fausey, & Smith, 2017; Johnson, Sullivan, Hayhoe, & Ballard, 2014; Mundy et al., 2007; Mumme, 2007; Mundy, 2003a; Mundy, 2003b; Scaife & Bruner, 1975; Mundy & Sigman, 2006).

The potential mechanisms which are the cornerstone of the atypical joint attention include: atypical reflexive look, integration impairment of joint attention (Ozonoff, 1997; Charman, 2001; Mumme, 2007; Mundy, 2003; Mundy, Sullivan, & Mastergeorge, 2009) and decrease in skills of recognition of the focusing gaze significance (Charman, 2001), decrease in social motivation and recognition of value of remuneration for social interaction (Charman, 2001; Dawson & Levy, 1989). It is possible to assume that the main aspect of violation consists in recognition, synthesis and interpretation of the focusing social information proceeding from eye contact necessary for functioning of the mechanism of joint attention and formation of base of social experience as bases of theory of mind.

The revealed inability of most of children of 5–6 years with reduced intelligence to understand other person's desires in the direction of his eye movements also proves that they did not reach that mental age when formation of theory of mind helps them to draw a conclusion on other person's mental conditions on their manifestations in behavior (Sergienko et al., 2009).

Results of the previous research allow to find prerequisites for a question of synchronism of cognitive development and formation of theory of mind based on the joint attention mechanism, namely recognition of external behavioural manifestations (the direction of a gaze). The potential mechanisms which are the cornerstones of atypical joint attention insensitivity to the main social signals will interfere with standard age development. It is possible to speak about the threshold size of I. Q. necessary for formation of theory of mind. However there is an open question of whether it is possible to consider that the development level of psychometric intelligence estimated on the basis of tests testifies if not to central, then to the most important and necessary role of cognitive development for formation of theory of mind? (Sergienko et al., 2009; Dawson & Levy, 1989)

The deficiency of theory of mind correlates with disorders of thinking (Mazza et al., 2007; Russell & Sharma, 2003). But are there difficulties of recognition of the mental world of other people as a result of cognitive deficiency (Frith & Corcoran, 1996; Bora & Pantelis, 2013; Bora,

Yucel, & Pantelis, 2009; Bruner, 1985), or are they independent disorders (Harrington, Siegert, & McClure, 2005; Skvortsov, Apeksimova and Petrakova, 2002)? Are disorders of theory of mind secondary in relation to cognitive impairments (Bora & Pantelis, 2013; Bora, Yucel, & Pantelis, 2009)? It is either disorder in development of the visual attention detector (Baron-Cohen, Leslie, & Frith, 1985), or lack of mimetic response (Gopnik, Capps, & Meltzoff, 2000), or the development deficiency in symbolical functions interfering development of theories of mind (Hobson, 2005), or the development deficiency in mental modules organization (Leslie & Frith, 1988).

What determines the cognitive child development, or cognitive impairment of developmental age interferes with development of theory of mind?

Thus, the goal of research is a study of process of orientation decline to social signals at children with a developmental delay for display of a specific impairment of joint attention as a social and cognitive phenomenon.

Methods

Empirical survey sample: 514 children of preschool age. From them the group of children at the age of 4–5 years ($n = 107$) and the group of children of 6–7 years ($n = 354$). The sample was also made by 53 preschool-age children visiting groups of the compensating orientation: the children who made this sub-sample have development disorder which are characteristic of the different forms of developmental delay including mixed by F80–F89 on MKB-10. These are preschool children with combined forms of peculiar properties of mental development and (or) deviations in behavior – cognitive function impairments, speech disturbances, disorder in emotional-volitional sphere, behavior, communicative function. At presentation, the psychiatrist estimated the level of intellectual development by means of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). Children with a developmental delay had the developmental level of intelligence under average (< 85). Upon record: obvious hypotrophy of functions of attention and memory, disturbance of perception rate, slowness of processes of reception and processing of perceptual date and also difficulty in synthesis of the percepts. Children with lower limit of normal developmental age demonstrate the disproportional structure of their intellect that is shown in verbal function maldevelopment and also in mental capacity decline, an nondevelopment of visuomotor coordination and visuospatial analysis and synthesis.

Techniques

1. Classical tasks on theory of mind were applied to assessment of level of understanding of intentions, desires, the interests of others on behavioural manifestations (a gaze, gestures, etc.): “wrong opinion test”, “Sallie-Ann test”; the task on a research of a possibility of use of the direction of a gaze as the indicator of desire “What wants Charlie?”; a task on understanding of the principle “to see – means, the nobility”: “What girl knows that she lies in a box?” (Baron-Cohen, 1989, et al.); a task on understanding of intentions with a support on external signs.

2. The task developed by us was used – the analog of a classical diagnostic task “What wants Charlie?” on a study of a possibility of use of the gaze direction of the character on the picture as indicator of intention to choose an object from a number of offered.

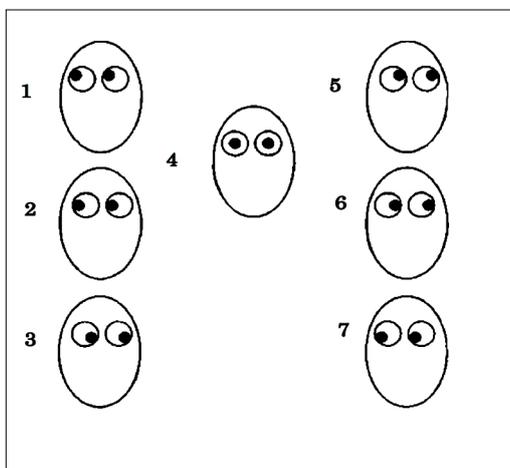


Figure 1. Stimulus material for a problem of determining the choice of an object of the gaze direction of the character

For check of the conclusion that results of performance of the task are connected with detection of the gaze direction, we offered a number of the additional tasks including the hidden orientation of attention (Fig. 2). Orientation of attention was set by the central or peripheral specific determiner.

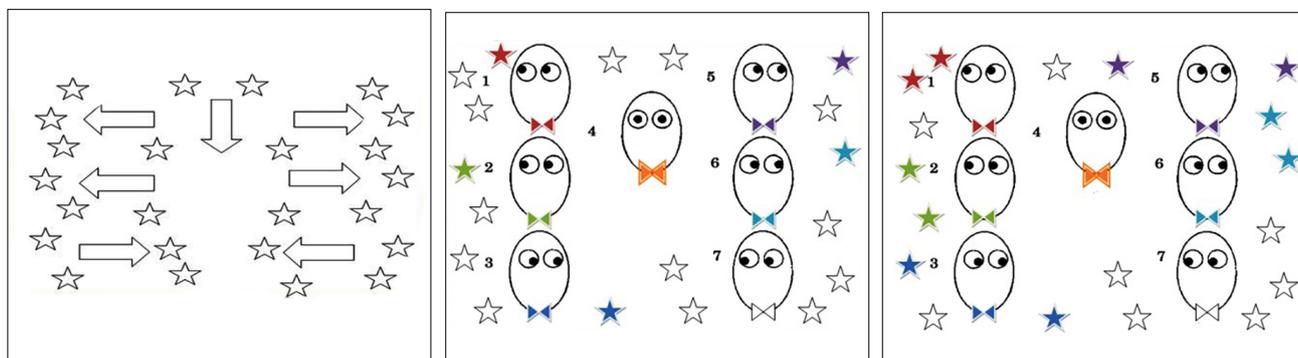


Figure 2. Stimulus material for a problem of determining the choice of an object with the central and peripheral specific determiner

The central specific determiner represented the obvious instruction an arrow on an object which the child had to choose. The peripheral specific determiner represented a way of attraction by means of coincidence of color of an object which was chosen by the character, with color of an element of clothes of the character. One more task along with noise and the specific determiner – illumination – was in color also at a target object, and at alternative.

3. Neuropsychological tests for the study of the block of reception and processing of information: processing of acoustical information (reproduction of rhythms, understanding of the

words similar on sounding / on value; development of oral-aural memory); processing of visual information (identification of realistic images, identification of the crossed-out images, identification of unfinished images, identification of images in "noise", allocation of images from a background, visual memory); processing of visual and space information (Head tests, constructional praxis, visuospatial memory). The main are tests on identification of sensibilized images, enough the main characteristics of visual identification, sensitive for identification, at the child.

Data processing was carried out with use of the program of statistical information processing (SPSS V.23.0).

Results

1. At the first stage by means of Student t-test it was found significant difference between groups of the children meeting standard of age development and children with lower limit of normal developmental age in definition of intentions to the gaze direction of (Fig. 3).

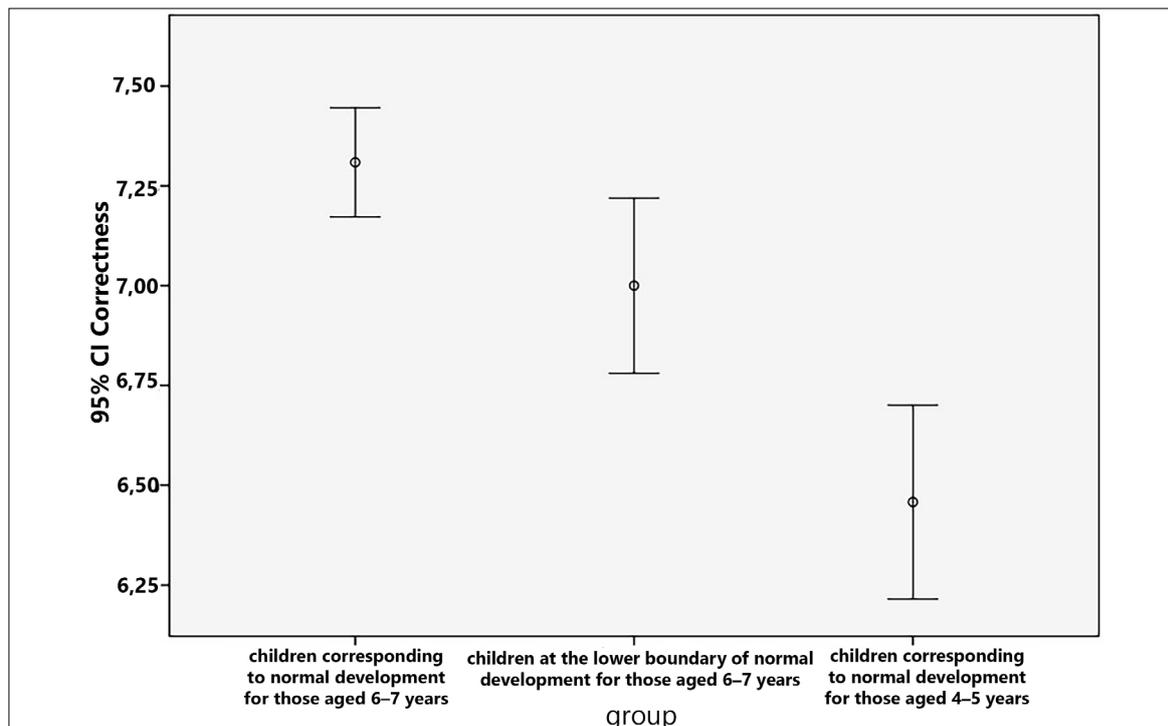


Figure 3. Correctness of determination of intentions in the gaze direction in the groups of children with the different level of developmental age

So, the group of children whose developmental age corresponding to standard more precisely and unmistakably determine intentions by the gaze direction in all 8 offered tasks ($p = 0.02$). Besides, if to compare 2 age groups of children of 4–5 years and 6–7 years, then the indicator of correctness and faultlessness of definition of the choice of an object in the gaze direction in group of children of 6–7 years ($p = 0.018$) is statistically reliable (Fig. 3).

Having analysed a variation degree and scope of data, we see that in the group of children of 6–7 years indicators are more uniform, than in the group of children of 4–5 years. It is possible to assume that these distinctions demonstrate confirmation of process of formation of skills of joint attention: if at the age of 4–5 years it is possible to observe a heterochrony and heterogeneity of indicators of this skill, then by 6–7 years this skill becomes a uniform new growth. This fact is complemented with high degree of a variation of indicators in the group with lower limit of normal developmental age and uniformity in group of children whose developmental age corresponding to standard.

It is possible to assume that the answer to joint attention (sensitivity to the focusing value of the direction of a look) is connected with the level of cognitive development and is capable to reveal consecutive disturbances in initiation of joint attention with other people, removal of mental conditions of other people from the gaze.

It is also revealed that if to compare children of 6–7 years whose developmental age corresponding to standard, children with lower limit of normal developmental age and children of 4–5 years (with standard development), then differences in full formation of skills of joint attention not only in an age group, but also between group of children of 4–5 years and children of 6–7 years with the lower bound ($p = 0.0001$) and age norm of development ($p = 0.0001$ come to light) (Fig. 3).

This fact displays variability of formation and a possibility of distinctions of age changes of skills of joint attention, to be exact, opens existence of ontogenetic differences in understanding of intentions of another in the direction of a look as most important skill of response to joint attention and initiation of joint attention. Distinctions of 2 groups of children – one with developmental age corresponding to standard and two with lower limit of normal developmental age confirm a hypothesis of the leading role of participation of the child in joint attention, in acquisition of ability to coordinate attention with social partners that is crucial for active participation of children in a possibility of training by it.

By means of the dispersive analysis differences between groups of children whose developmental age corresponding to standard, the lower limit of indicators of developmental age corresponding to standard and group of children with a developmental delay were revealed. Distinctions of these groups of children – the one of 6–7 years with the group of children of 4–5 years (Levene's Test ≥ 0.05 , $F = 42.120$, $p = 0.000$, $\eta^2 = 0.221$) are also received (Fig. 4).

The results show that the correctness of the gaze direction is defined better by children whose developmental age corresponding to standard. Group of children with lower limit of normal developmental age and also group of children of 4–5 years showed results below the group of the children with developmental age corresponding to standard. Children with a developmental delay showed cardinally different results; the correctness of the gaze direction is less at mentally retarded children, than at the groups of contrast. These distinctions of age changes of skills of joint attention are connected with the development level of the child.

2. The assumption was checked that at children with a developmental delay the analysis and interpretation of information proceeding from the gaze direction at safe processing of information proceeding from the focusing indications of unsocial character are violated.

Comparison of the series of experiments where children were offered to determine the choice of an object by the direction of an arrow was made for this purpose, to determine intentions of the choice of an object by a gaze of the character without specific determiner and with the central, peripheral color specific determiner (see methods); Student t-test was applied to dependent sample.

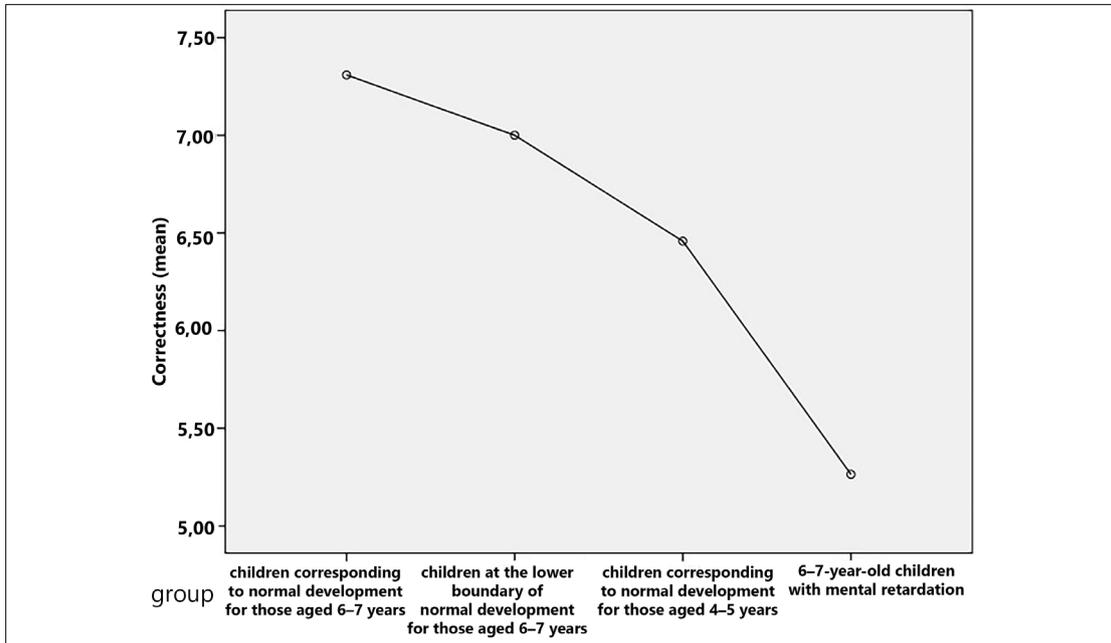


Figure 4. Comparison results of the children groups

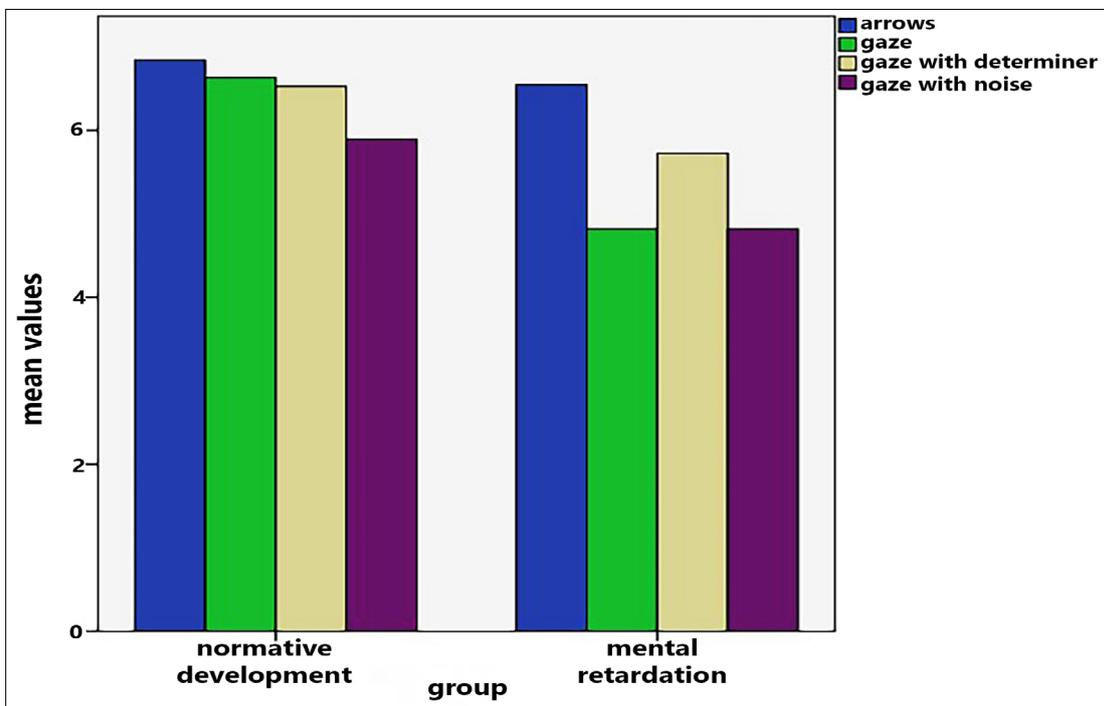


Figure 5. Differences of indicators of the groups in the series of tasks

		<u>Norm</u>	<u>Developmental delay</u>
		Two-tailed correlation	
Pair 1	Task with arrows – Task with gaze	0,003	0,001
Pair 2	Task with arrows – Task “gaze with determiner”	0,012	0,068
Pair 3	Task with arrows – Task “gaze with noise”	0,0001	0,004
Pair 4	Task with gaze – Task “gaze with determiner”	0,324	0,085
Pair 5	Task with gaze – Task “gaze with noise”	0	1,000
Pair 6	Gaze with determiner – Task “gaze with noise”	0	0,053

The obtained data (Fig. 5, Table 1) show significant differences in success of choice recognition of an object according to the indication of an object with an arrow and choice determination of an object for detection of the gaze direction of a character.

In the group of children with a developmental delay, the children are more successful in the choice of an object in the tasks where there is a concrete specific determiner (the central specific determiner, the obvious instruction – shooters), and determine the choice of an object by the gaze direction of the character less successfully. At the same time, they are more successful also in the choice of an object in the gaze direction of the character in the tasks with the color specific determiner, than in the tasks where this specific determiner was absent. In the group of standard developmental age in a task with the specific determiner such distinctions are not revealed.

It is possible to assume that the insensitivity to the main social signals from other person and therefore they do not perceive others eyes is really characteristic of children with a developmental delay as it is adaptive informative, the eye contact is a source of information on other people's intentions. At the same time, they are successful in recognition of concrete information specific determiners.

3. Further we decided to check a hypothesis of the unity of deficiency of the social information processing mechanism and the general information processing mechanism leading to disturbance of synthesis of information of social experience for exchange of social information.

By means of the regression analysis it is revealed that processing of social information (a problem in theory of mind) is connected with such difficulties of information processing ($R^2 = 0.759$, $p = 0.0001$) as: recognition of the crossed-out images ($\beta = 1.074$, $p = 0.0001$), recognition of not finished drawing images ($\beta = -0.578$, $p = 0.004$).

Information processing in the direction of gaze is connected with such difficulties of information processing as ($R^2 = 0.467$, $p = 0.020$): recognition of not finished drawing images ($\beta = -0.794$, $p = 0.007$), recognition of drawings by essential features ($\beta = 0.436$, $p = 0.007$), understanding of the prepositions

which denotate mutual arrangement in the space ($\beta = 0.407$, $p = 0.006$).

It is possible to come to a conclusion that in the course of processing of social information an important role is played by individual differences of children in processing of visual information.

The available difficulties are found, mainly, at presentation of the imposed and crossed out schematic images and, most likely, are caused by prevalence of one of the strategy of processing of visual and visuospatial information. The weakness of holistic strategy is more often observed (mistakes as fragmentariness): children pay attention to the general similarity or snatch out an accidental fragment, without checking a perceptual hypothesis.

Discussion

This research displays the most important role of ability to integrate and to use joint attention for the general development of the child. The context of one of the reasons of joint attention development and functional consequences of joint attention is displayed.

Difference in 3 groups (with standard, with lower limit and with a delay of developmental age) confirm a hypothesis of the leading role of participation of the child in joint attention, in acquisition of ability to coordinate attention with social partners that is crucial for active participation of children in a possibility of training by it.

The main aspect of disturbance consists in recognition, synthesis and interpretation of the focusing social information proceeding from eye contact necessary for functioning of the mechanism of joint attention and forming of base of social experience as a basis of theory of mind.

The data display differences in the joint attention conducted by the "ascending" processes and the joint attention conducted by the "descending" processes (Tomasello et al., 2005, etc.). It is possible to assume that the "ascending" joint attention (bottom-up joint attention) preponderates at children with a developmental delay that is based on information on perceptual characteristics of incentives: the incentive or an event draws involuntary attention owing to its "saliency", singularity, and the child can draw a conclusion that this incentive or this event also draws attention of our interlocutor. At the same time children with a developmental delay experience difficulties of the top-down joint attention which is based on information on a semantic context of communication, for example, knowledge that any subject is new or significant for the interlocutor (but not for him).

The analysis of the data also allows to make the conclusion that to difficulties of processing of social information, difficulties of recognition of intentions in the gaze direction can bring the following features of processing of information:

- 1) fragmentary nature of perception: the child intuitively supplements a fragment to the whole, without seeing the whole;
- 2) attention to details to the detriment of the whole or the excess generalized perception;
- 3) simplification, mixing of essential details;
- 4) tendency to perceptual replacements at insufficiency of the entering perceptual information, mixture of the close visual objects;
- 5) use of visual standards suffers;
- 6) the generalized categorical perception: in assessment of hierarchy of object features can miss a detail, essential, critical for identification;
- 7) information is processed, and decisions are made separately on a form, a size, a location of an object for what the signs which are not depending on the size, situation and brightness – a categoriality are used;

8) the mechanism is broken which provides more complete and concrete description of the image in which each element of the image and a relative positioning of all elements is noted;

9) the holistic principle of perception prevails, it is optimum at the first stages of processing of visual information and in general when processing new information;

10) analytical strategy when a person describes incentives in terms of the formed, ready system of the description, in particular, of the verbal-perceptual description is broken.

In the group of children with a developmental delay the success of performance of neuropsychological tasks depends on the level of their general intellectual development, unlike the group of the developing preschool children corresponding to the norm whose neuropsychological features are determined by their individual characteristics.

Conclusion

The data allowed to find differences in mechanisms of working-through of visual field cues, split growth of the components of visual perceptual functions which can determine children's individual differences in processing of social information on other people's behavioural manifestations.

As well as in the previous research (e.g.: K. S. Lebedinskaya, N. A. Shumskaya, I. A. Skvortsova, O. A. Apeksimova, V. S. Petrakova), occurrence of specific characteristics in information-processing in children with a developmental delay was confirmed.

With that in mind, it was succeeded to connect the obtained data with difficulties in its processing of social information, which is necessary for establishment of episodes of joint attention in this research.

The analysis of results of this research allows to come to a conclusion that neuropsychological features at children with a developmental delay not only have a specific impact on structure of intellectual functions, but also indirectly influence on processing of social information.

By results of this research it is possible to draw a conclusion that symptom expressions of disorder in joint attention through identification of intentions in the visual direction is connected with standard age formation of the child and it is moderated by cognitive functioning. In turn, the mechanism of joint attention helps to interpret and understand sense of social information. This research shows that the deficiency (non-formation) of information-processing functions can act as one of possible mechanisms of defect of joint attention.

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The Psychological Concept of Overcoming: Theory, Methods, and Diagnostics

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Abstract

Introduction. This paper (a) provides an overview of various theoretical and methodological approaches to studying the concept of 'overcoming', (b) presents terminological, semantic, and functional approaches to the analysis of the concept of 'overcoming' in the structure of athletes' self-consciousness, and (c) demonstrates associations between the phenomenon of 'will' and the concept of 'overcoming' from various perspectives. In particular, we examine philosophical, psychological, pedagogical, psychophysiological, and socio-psychological determinants that influence our approach to studying the phenomenon of overcoming. This study represents a first attempt to carry out the methodological, theoretical, and critical analysis of the issue of overcoming in psychology. We systematized previous ideas and concepts about the phenomenon of 'overcoming', formulated our working definition of this concept, and distinguished levels of overcoming. For the first time, the phenomenon of 'overcoming' is comprehensively studied in terms of physical and psychological regulatory determinants.

Theoretical Basis. We discuss in detail basic theories, principles, and concepts including the dialectical principle, the principle of transgressiveness, the principle of stable disequilibrium of living systems, and the principle of self-determination. This section (a) provides the main conceptual framework for the psychological theory of overcoming, (b) considers the impact of the concept of resilience, the extra-situational theory of activity, the idea of passionarity and liminality, and (c) concentrates on the psychology of extreme situations, psychological barriers, and risk issues. Explanatory determinants of the phenomenon of overcoming include the 'freedom reflex' and the 'goal reflex' by I. P. Pavlov, the 'principle of dominance' by A. A. Ukhtomsky, the synergistic ideas of the 'concept of nonequilibrium systems' by I. Prigogine, the 'concept of passionarity' by L. Gumilev, and conceptual perspectives of P. K. Anokhin, B. G. Ananiev, N. A. Bernshtein, E. S. Bauer and other scientists.

Results and Discussion. We elaborated a scheme for functional analysis of retrospective autobiographical questionnaire data and also developed an algorithm for semantic analysis of empirical data. The results of the content analysis enabled us to introduce a structural and dynamic characteristic of the phenomenon of overcoming and to clarify psychological parameters of the concepts of 'will' and 'overcoming'. We (a) carried out the semantic analysis of various concepts of the phenomenon of overcoming, (b) introduced a level-based concept of overcoming, and (c) attempted to conceptualize the concept of 'will' and its associations with the paradigm of 'overcoming'.

Keywords

will concept, overcoming phenomenon, overcoming levels, transgression, motivation, experience, coping, uncertainty

Highlights

- ▶ The issue of overcoming critical situations has theoretical, methodological, and practical perspectives.
 - ▶ The transdisciplinary approach to constructing the concept of overcoming includes the following principles: the principle of contradictions, the principle of transgression, the principle of potentiation, the principle of limits, the principle of subjectivity, the principle of self-determination, the principle of dissatisfaction, the principle of uncertainty, and the principle of danger.
 - ▶ The level-based model of overcoming helps to present the phenomenon of overcoming in the form of stages of overcoming ascension and transformation during transitions from one level of activity to another.
 - ▶ Psychological components of overcoming include (a) the motivational component of overcoming (motive as the primary result of overcoming addiction), (b) the behavioral component of overcoming (an act as a result of overcoming behavioral incompetence), (c) the cognitive component of overcoming (intellectual activity as a result of overcoming uncertainty), and (d) the affective component of overcoming (experience as a result of overcoming danger and anxiety).
 - ▶ The introduced overcoming criteria help measure the process of overcoming using the following variables: a cognitive measure of uncertainty, an affective measure of danger, a motivational measure of dissatisfaction, and a behavioral measure of incompetence.
 - ▶ The paradigm of overcoming various limitations in the course of activity enables us to analyze the developing, teaching, and training mechanisms of personal creative forces.
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Introduction

The paradigm of overcoming in science

Scientists have always been interested in the issues of overcoming. The analysis of previous theoretical and practical research in this field demonstrates that, the issues of increasing the ability to overcome crisis events remain important, as all the proposed methods, in our opinion, are ineffective. The issues associated with the phenomenon of overcoming extreme peak events indicate that the established practice of pedagogical activity underestimates this phenomenon. The following contradictions determine theoretical, methodological, and practical relevance of this study:

- Contradictions between the psychologists who believe that studying the concept of ‘overcoming’ cannot be a necessary and sufficient condition for explaining the specific character of the phenomenon of will and those ones who believe that a substantial analysis of the phenomenon of ‘overcoming’ is important for studying theoretical and practical issues of will.
- Contradictions between numerous research projects in the field of studying critical (stressful, conflict, crisis, risk, and extreme) situations and the absence of theoretical content-based

analysis of the process of overcoming such situations.

- Contradictions between well-studied behaviors in critical situations by means of two mechanisms: psychological defense (maintaining the psyche) and coping mechanisms (adaptation, adaptation of the psyche) and insufficient development of the concept of overcoming in terms of 'coping behavior' as a mechanism for training and developing personality.

The existing contradictions underlie key issues of studying the concept of overcoming in psychology, pedagogy, and sport.

In previous psychological and pedagogical research the phenomenon of overcoming is most accurately and correctly correlated with 'coping-behavior' (Lazarus & Folkman, 1984). The concept of 'coping' comes from the English verb 'to cope' (to overcome, to fight). In German-speaking psychology, the concepts of 'Bewältigung' (overcoming) and 'Belastungsverarbeitung' (processing exertion) are used synonymously.

The phenomenology of overcoming is adequately manifested when describing such human behaviors as 'assertiveness' (Hobfoll & Lerman, 1988, pp. 565–589), 'control of actions' in a situation of barriers and/or failure (control) (Kuhl & Beckmann, 1994; Kuhl, 1994; Kuhl, 1983), 'psychological defense' (Plutchik, Kellermann, & Conte, 1979), 'resilience' (Sapogova, 2009; Maddi, 2002; Maddi, 1965), protest behavior (Huseynov, 2017), liminality (Sapogova, 2009; Shipovskaya, 2013), extremity (Tomalintsev, 2007; Magomed-Eminov, 2008; Caplan, 1963), riskiness (Kornilova, 2003; Petrovsky, 1992), etc.

The struggle accompanies individuals' lives; they must make constant efforts for both external and internal continuous work. The intense life proceeds in such a way that the most important and significant moments depend on the stresses and efforts. Tension, effort and struggle in life mean that something is absent and cannot appear without considerable effort. It follows then that the whole subjective world is supported by psychophysical, spiritual, and moral efforts. "The degree of individual achievement will be determined by the number of efforts made by individuals" (Mamardashvili, 1997).

Paraphrasing M. Proust's favorite definition, which has become the conceptual slogan of M. K. Mamardashvili, we should say that "a man is an effort to be a man; life is a man's effort in time" (Mamardashvili, 1997). If individuals do not make efforts or take responsibility in situations of uncertainty, danger and risk for being alive, time is wasted. Life experience forces each person to be ready for intense activity, physical and mental efforts, the struggle against internal and external impacts. Professional result is not defined. However it depends entirely on our efforts. Individuals' success depends on their capability and willingness to make efforts" (Mamardashvili, 1997).

A man may be defined as an 'overcoming man', from our point of view. He exists in his entirety when overcoming himself, internal and external limitations, and physical and mental barriers; this allows him to take his place and achieve sports result. A real man is a person who seeks extreme ultimate situations (Ryan & Deci, 2002; Ryan, Deci, & Grolnic, 1995; Ryan & Deci, 2000). Then in extreme situations the person's behavior balances between success and failure. Then we may analyze risk (as a form of overcoming difficulties in life) as a point of instability, imbalance, bifurcation, a turning point in relations between luck and failure, success and defeat, loss and acquisition. In other words, this is a point of equal chances.

S. L. Rubinstein (1997) noted, "I constantly explode, change the situation in which I find myself, thus continuously going beyond myself. This is not a denial of my essence... It is its formation

and the realization. It is not self-denial, but becoming and realization. My present being, my completeness, and finitude are the only things that I deny”.

Back in the late 70’s, the theory of activity was analyzed through the concept of “barrier”. Unfortunately, this idea was abandoned. However, K. D. Ushinsky in his works associated activity with the concept of ‘obstacle’. He wrote that any activity is impossible without obstacles, means of overcoming, and the process of overcoming (Ushinsky, 1953).

Psychological knowledge treats the concepts of ‘restrictions’, ‘obstacles’, and ‘barriers’ in their ordinary senses – as something superfluous, disturbing, and undesirable. Therefore, it is assumed that from a theoretical, methodological, and practical point of view, these concepts mean nothing. These are not scientific concepts. From our point of view, the concepts of ‘limitations’, ‘obstacles’, and ‘barriers’ are not simply an attribute of pedagogical, sports, and creative activities. They exist everywhere where there is an opposition of forces. Thus, any material system consisting of various parts can only exist due to various restrictions that impede its existence. No physical object can exist without limitations and barriers. They determine the development of any system and the existence of humanity. Like a dam blocking a river bed, limitations and barriers stimulate, catalyze, and accumulate energy. They organize, regulate, correct, and organize various movements and energy flows. A man himself became a man because he learned to overcome the gravitational forces when walking and running, the resistance of water, air, atmosphere, as well as the spiritual and moral barrier – conscience, which represents a spiritual core of people and underlies the existence of the state and mankind.

The paradigm of overcoming opens new possibilities for obtaining psychological knowledge, relying on a single system-forming concept of ‘overcoming’. The analysis of activities that help overcome professional limitations and obstacles may enable us to study the main source for various mental neoformations, developmental factors, training in various functions of the human psyche and behavior and to understand their role in the achievement process, relying only on the concept of overcoming.

Studying the phenomenon of overcoming, which is often expressed in the form of mental stress (stress), mental effort (volitional effort) and the psychology of struggle (struggle of motives), may help determine the positive impacts of ultimate factors on the result in any professional activity.

It is generally accepted that will is an active aspect of consciousness, the highest level of consciousness. It performs functions of organization, managing, regulation, control, and coordination and represents the central mental phenomenon that retains all the other functions (sensory-perceptual and cognitive-emotional) in the field of consciousness. Will creates an effort and retains it as long as it is necessary for goal (result) achievement. This human ability, manifested in self-determination and self-regulation of his activity, is reflected in the works of Maslow (1967), Deci & Ryan (1991; 1985; 1986; 2002; 1995; 2000, etc.). This human ability that manifests itself in self-determination and self-regulation of human activity is examined in the works of Maslow (1967), Deci & Ryan (1991; 1985; 1986; 2002; 1995; 2000, etc.). The will directs, activates or inhibits individuals’ actions, and also is included in the processes of motivation and goal setting. Will directs mental activity to solve problems and represents an initiating, mobilizing, and internal factor of activity.

According to Tulchinsky (2002), the concept of will “only reflects the instinct of freedom” (p. 454) that denies determination. The word ‘de-termination’ originates from the Latin language and

means determination, limitation, restriction and is equivalent to 'limitless' which, on the one hand, reflects a negative attitude towards generally accepted social norms (cited in: Leont'ev, 2011, p. 67) and, on the other hand, emphasizes the relativity of limits.

Theoretical Basis

Principles of overcoming

Conceptual approaches to the study of the phenomenon of will as overcoming are based on general dialectical principles formulated by Hegel (1974), Mamardashvili (1997), and Rubinstein (1997). The transgressive theory of personality by Koziellecki (2001; 1997; 1995; 1987) and the psychological theory of overcoming by Shakurov (2003) are fundamental in this field. The resilience models by S. Maddi and D. A. Leontyev (Leontyev, 2011; Maddi, 2002; Maddi, 1965), the principle of self-determination (Leontyev, 2011), the ideas of passionarity (Gumilev, 2001), the phenomenon of liminality (Tulchinsky, 2002; Sapogova, 2009), studies of the overcoming adaptation (Pakulina, 2010) expand the understanding of our approach. The principle of stable nonequilibrium of living systems by Bauer (1935), the extra-situational theory of activity by Petrovsky (1992), conceptual perspectives of nonequilibrium systems by I. Prigogine, the development of issues of extremity (Magomed-Eminov, 2008; Razumovsky, 1988; Tomalintsev, 2007) represent an important addition to the study of the phenomenon of will as overcoming. The transdisciplinary approach enables us to concentrate on the theory of constraints in economics and management, the results of the study of psychological barriers in pedagogy: Shakurov (2003), Podymov (1999), Brehm & Weintraub (1977). Numerous studies of risk are presented in the works of Petrovsky (1992), Kornilova (2003), and Koziellecki (1987). The explanatory determinants of the essence of the phenomenon of overcoming include the 'freedom reflex' and the 'goal reflex' by I. P. Pavlov (Pavlov, 1951, p. 481–485), the 'principle of dominance' by A. A. Ukhtomsky (Ukhtomsky, 1966), synergetic ideas of the 'concept of nonequilibrium systems' by I. Prigogine (Prigogine, 1991), conceptual perspectives of P. K. Anokhin, B. G. Ananiev, N. A. Bernshtein, and E. S. Bauer.

1. The *principle of contradictions* enables us to present basic psychological categories – namely, reflection (as the basis of cognitive processes), relation (as the basis of emotional processes), and regulation (as the basis of volitional processes) within a single system of interconnected methodological principles, where motivational, cognitive, emotional, behavioral and somatic components of the human psyche represent its qualitative diversity. Thus, the fundamental theoretical and methodological framework for the concept of overcoming helps reveal its psychological meaning at a higher level of abstraction. We should note that the principle of contradictions underlies various psychological and psychotherapeutic concepts.

V. Frankl (1990) wrote that the essence of human life and development is determined by internal contradictions, the struggle of opposing processes of stability/variability, assimilation/dissimilation, activity/passivity; these contradictions force individuals search their solutions. When creating, individuals sublimate difficulties, transcend the boundaries of themselves, transcends the limits of existing possibilities, overcome uncertainty, danger, and passivity, accumulate their forces in goal-oriented systems and realize resources.

V. Frankl argued that a man is a subject who seeks to free himself and overcome all the factors that previously determined him. In other words, a man is a creature surpassing all the determinants (physical, biological, psychological, social, and spiritual) by defeating, transforming or obeying them (Frankl, 1990).

G. Allport emphasized the constructive nature of a man aspiring to solve difficult problems arising in the life course. The 'resistance to balance' is a necessary condition for personal development (Allport, 1937).

Arguing metaphorically, personality may be represented as a subject acting at different levels, capacities and speeds, when higher-order laws can overcome the effects of basic, universal laws. Thus, a stationary physical object (e.g. stone) only overcomes the spatio-temporal boundaries of existence and gravity laws; obeying gravity laws, a moving object (e.g. car) overcomes them through friction laws and, thereby, overcomes the spatio-temporal boundaries of the existence of a fixed object; obeying gravity and friction laws, a flying object (e.g. airplane) overcomes their effects through higher-order laws of aerodynamics; a flying rocket overcomes the laws of gravity, friction, and aerodynamics through repulsive force against atmospheric layers by using the power potential of rocket boosters.

Frankl (1990) believed that limitations at physical and mental levels of individuals' organization may be overcome at a higher, spiritual level. Then, the involuntary level of behavior passes to the voluntary one. With increasing loads, the quiet mode of functioning passes to the intensive one; the intensive mode of functioning passes to the mode of efforts; the mode of efforts passes to the mode of struggle.

2. *The principle of transgression.* When defining the process of 'going beyond the limits' researchers use the term of 'transition' or 'transgression' (from the Latin words 'trans' – through, behind, and 'gressus' – to approach, to cross, to attack). This concept reflects the situation of achievement and victory when individuals carry out their professional activities at their maximum capabilities, in situations of going beyond the boundaries of previous achievements.

Y. Kozeletsky argued that regardless of the future prospects of his concept of transgression individuals will remain the same. They will always be subjects overcoming the boundaries of their achievements and forming new values and meanings. Human basic transgressive essence will not disappear. Otherwise a human being will not exist at all (Kozielecki, 1987).

Analyzing the psychology of creativity, Ponomarev (1994) stressed the need to go beyond the peaks achieved in creativity. Speaking about the development and formation of a moral personality, Chudnovsky (2006) emphasized the need to go beyond the limits of personality. Going beyond the real situation was the conceptual basis for Petrovsky (1992) theory of 'extra-situational activity'.

Most often, contradictions may arise in the human psyche and consciousness in the following forms: (a) physical obstacles (barriers); if we imagine that a human being is only a physical body, then overcoming physical restrictions (obstacles) leads to his/her physical development; (b) biological constraints (stresses); if we consider a human being as a biological being (individual), then overcoming biological constraints strengthens the defense systems of the organism by means of starvation, hardening, exposure to extreme temperatures, and pressure; (c) social constraints (conflicts); if we consider a human being as a social being (personality), then overcoming social constraints leads to improvement in interpersonal relations, to the formation of a favorable psychological climate in the sports team, and to the solution of social problems; (d) in the form of spiritual and moral constraints (crisis), if we study a human being as an individuality or a microcosm, then overcoming spiritual constraints lead to the development of personality and the acquisition of new meanings, ideas, and creativity.

G. Gurdzhiev, argued that difficulties in our lives are our teachers necessary. Analyzing, studying, and overcoming (struggle) the main shortcoming (contradiction) should be understood as a process

of self-actualization, which is the basis for personal structure (Uspenskii, 1992). Overcoming the contradictions (shortcomings), which transforms itself into achievements, successes, and victories, may be considered as a fundamental criterion for the formation of an 'overcoming man'. In other words, contradictions in the phenomenon of will carry out a determining function, which can be considered as the cause of the process of overcoming. The phenomenon of overcoming represents the field of the psychology of overcoming conscious or unconscious contradictions that function as self-determinants and self-regulators.

Levels of overcoming

The general scientific level of the methodology of overcoming theory includes (a) the general philosophical dialectical concept of development (laws of reflection, determination, the unity and struggle of opposites, the transition from quantitative changes to qualitative ones and vice versa, and negation of negation); (b) views of overcoming as a developmental mechanism determined by the opposition from the external environment; (c) views of overcoming as an active, individual process of interaction with the environment.

The phenomenology of overcoming has its representation in extreme peak events that are associated with various spheres of human activity (physical, biological, social, and moral). Peak events may be considered as the limiting case of a person's disequilibrium state, which develops because of the instability of the system. The concept of overcoming should be organized hierarchically, where the quality and levels of overcoming depend on the uniqueness an individual, his/her professional specialization, the level of independence and responsibility (measurements of personal self-determination) and also his/her values, motives, and meanings in the process of overcoming extreme situations. Shipovskaya (2013) noted that a multi-level model of overcoming allows us to represent the phenomenon of overcoming as a stage of overcoming ascension and transformation in the process of transitions from one level of activity to another.

1. *The level of psychomotor (psychophysical) activity* is aimed at overcoming external and internal physical limitations. To date, much research on the human psychomotor activity has been done in psychological science. Psychomotorics is the objectification of all forms of mental activity through muscle movements. "Whether a child laughs at the sight of a toy, or Garibaldi sneers when he is persecuted for his unbounded patriotism, whether a girl trembles at the first thought of love, or Newton proclaims universal laws and writes them down on paper – everywhere the ultimate factor is muscular motion" (Sechenov, 1953, p. 174–179). In other words, in the process of overcoming physical limitations (obstacles), individuals develop and improve themselves.

2. *The individual level of overcoming* is directly related to overcoming stressful situations. At the individual level of overcoming, individuals not only use various psychological defenses, but also various types of biological and physiological constraints (stresses) such as (a) going beyond the norms of consumption of vital substances due to dietary restrictions (starvation), (b) going beyond the limits of temperature norms (bath, sauna, hardening, cryotherapy) due to the influence of extreme high and low temperature environmental factors, (c) going beyond the limits of gravity norms (pressure chamber, where various atmospheric pressure conditions are simulated), etc.

Experience as the process of overcoming stressful life situations increases stress tolerance. Therefore, studying the structure and dynamics of current stressful experiences in the past and present, the phenomenology of specific experiences, and also the methods of working with

stressful feelings may help increase individual stability and personal development.

3. *The socio-psychological (personal) level of overcoming* is determined by the conditions of human life and is associated with overcoming conflict situations. The study of professional, social, and psychological determinants of conflict situations, the structural and dynamic parameters of behavior in a conflict, conflict behavior skills and methods for getting out of conflict situations may increase individuals' socio-psychological literacy, and resistance to conflicts and develop skills of using the energy of conflict situations for personal growth.

4. *The spiritual and moral (individual) level of overcoming* is associated with overcoming crisis situations and is aimed at overcoming constraints in the structure of values. Overcoming crisis situations can contribute to personal development. Knowledge of the algorithm for overcoming crises and ways of transforming the negative energy of the crisis into personal growth may be used in teaching students the skills of effective behavior in situations of a personal impasse.

The individual level of overcoming is determined by a person's life-meaning crisis – the inability to live as before and the lack of understanding a further life strategy (experiencing an impasse). Such a crisis should lead to the understanding of main internal goals and the choice of means of going beyond self-limits in terms of transgressive behavior. This level is characterized by a creative approach to professional activity, pronounced value and motivational involvement; it is aimed at solving individual problems, overcoming inefficient behavior strategies, and overcoming intrapersonal resistance. Going beyond the limits of spiritual constraints (crises) requires continuous efforts in realizing all the 'unique' things that individuals need at the moment, which leads to the development of personality and the acquisition of new meanings, ideas, and creativity.

Psychological components and parameters of the process of overcoming

The process of overcoming is complex and manifests itself in four dimensions:

1. 'Need' as the basic determinant (limiter) of individuals' motivational activity (desire to overcome). This component represents the dynamic processes of the emergence and disappearance of personal motives, an increase and decrease in their intensity and contributes to the emergence of anti-motives, anti-desires and anti-needs, leading to the struggle of motives, desires, and needs, as well as going (overcoming) beyond the boundaries of existing 'inefficient' motives towards other motivational attitudes, which actualize human resources and help achieve success.

2. 'Uncertainty' as a necessary component (limiter) of individuals' cognitive activity (cognition as overcoming uncertainty). This cognitive component of the process of overcoming is determined by life problems that form individuals (activate, launch, catalyze, and determine the human thought process).

3. 'Danger' or 'anxiety' as a key parameter of individuals' emotional activity (experience as overcoming anxiety). The emotional component of the process of overcoming enables us to consider experience as the process of overcoming that contains certain psychological parameters.

4. 'Deficiency or insufficiency' of skills and abilities is a necessary and explicit component of individuals' behavior (coping-behavior). This component is aimed at overcoming the physical, technical, and tactical shortcomings in their professional activity and affects the optimal course of activity, caused by characteristics of extreme situations in this type of professional activity and the characteristics of individuals. The behavioral component of the process of overcoming is presented in various coping strategies, techniques, and methods.

Results and Discussion

Our empirical study of the phenomenon of will as overcoming involved students of Lesgaft National State University of Physical Education, Sport and Health. The issue of will is complex; it may be represented at 4 levels of mental activity and is determined by the contradictions that appear in students' consciousness in the form of various restrictions including physical barriers, mental stress, socio-psychological conflicts, and individual crises. The phenomenology of will has four variables that correspond to the cognitive, affective, motivational, and behavioral components of this process.

Undoubtedly, knowledge of the phenomenon of overcoming, the ability to overcome various psychological contradictions, the systematic and complex nature of the impact of restrictions on students' personality, and the mechanism of overcoming determine the effective formation of their character. The results of the study of the phenomenon of will as overcoming in students' educational activities enable us to develop recommendations for improving students' psychological training and may provide materials for a psychological training program for shaping contemporary students' will to their knowledge and skills in overcoming behavior.

To study the subjective perception of the phenomenon of overcoming in athletes of various specializations, we carried out a content analysis of definitions of will. After analyzing the frequency of occurrence of various measures of the psyche, we found the motivational component of the will to be the most often noted by the students (15.94%). The criterion of 'overcoming limitations' (15.4%) was in second place by the frequency of statements. We observed an association with volitional qualities and traits (10.7%). 9.6% of students drew attention to the 'dynamic characteristics' of will. Further, students emphasized the following aspects: the behavioral aspect (9.6%), the power aspect (6.7%), the regulatory factor (6.1%), self-orientation (5.8%), 'human' (5.8%), 'consciousness' (4.9%), the aspect of freedom (4.1%) (Table 1).

Generalizing the results obtained in this study, we may provide the following characteristic of the will. Will is a positive orientation of human consciousness, embodied in motives, aimed at overcoming restrictions. It has a pronounced procedural component and is closely related to human behavior. Besides, it has a power component, carries out the regulatory process, and determines the desire for freedom.

No.	Integral characteristic of will	Frequency characteristic	%
1	Motivational aspect	55	15,9%
2	Overcoming limitations	53	15,4%
3	Volitional qualities and traits	37	10,7%

Table 1

Integral characteristic of will by the results of content analysis (n = 87)

No.	Integral characteristic of will	Frequency characteristic	%
4	Procedural characteristics	33	9,6 %
5	Behavioral aspect	29	8,4 %
6	Positive aspects	23	6,7 %
7	Power aspect	23	6,7 %
8	Regulatory aspect	21	6,1 %
9	Self-orientation	20	5,8 %
10	Human	20	5,8 %
11	Consciousness	17	4,9 %
12	Freedom	14	4,1 %
	Total	345	100 %

Conclusion

1. The terminological analysis of the concept of 'overcoming' enables us to assert that this phenomenon is reflected in the phenomena of tension, effort, struggle (levels of overcoming) and is associated with a sense of transition, shift, and 'going beyond' the reality. The process of overcoming is only possible if there are obstacles; it is associated with overcoming their resistance and means the highest degree of manifestation of any quality that allows individuals

to go beyond the boundaries of certain situations. Overcoming carries out the function of control, protection, coping, resilience and, thereby, mobilizes reserves, while maintaining personal freedom and development.

2. The functional analysis of the concept of 'overcoming' showed that this psychological concept reflects the function of determination, amplifying the development of consciousness, systematizing subjective world, and manifesting itself in the form of cognitive, emotional, motivational, and behavioral processes.

3. Summarizing the empirical data of content analysis, we suggest the following definition of will:

Will is a positive orientation of human consciousness, which is embodied in motives aimed at overcoming limitations. It has a pronounced procedural component, is closely related to human behavior, has a power component, carries out the regulatory process, and determines the desire for freedom.

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Views on Psychological Immunity in Russian Psychology

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Abstract

Introduction. Numerous multidisciplinary studies examine non-physical types of immunity in recent years. By analogy with physical immunity, psychological immunity provides the comprehensive protection of the human psyche in extreme stressful situations and also in everyday activities. Psychological immunity can potentially become the phenomenon that may combine disparate views of defense mechanisms of the human psyche. Therefore, it seems reasonable to introduce and develop this concept.

Theoretical Basis. The concept of psychological immunity was first introduced by A. Olah. He defined it as a mental phenomenon that brings together all the adaptive resources of an individual. Previous research has demonstrated that psychological immunity is a widely accepted concept with clear conceptual and theoretical grounds and practical tools for diagnosis, development, and correction. The development of the concept of psychological immunity aroused our interest in Russian researches in this field.

Results. Russian researchers agree that psychological immunity is a personality trait that contributes to the preservation of an individual's adaptive state when exposed to adverse factors through the use of resources. These resources are not only psychological defenses and coping strategies, but also self-regulation, reflection, consciousness, meaningfulness, coherence, etc. Very few but diverse previous studies of psychological immunity have outlined its content-related, structural, and functional concept.

Discussion. Psychological immunity is a mental phenomenon that helps to maintain the state of psychological well-being and psychological safety. The functions of psychological immunity are identical to those of physical immunity and include monitoring the functional state, memorizing the impact, reducing the intensity of re-experiencing, maintaining the state of psychological well-being, and facilitating negative experience. Aversion (as a reaction to potentially unpleasant phenomena) and anxiety (as a reaction to potentially dangerous phenomena) are the mechanisms that trigger a psychoimmune response.

Keywords

psychological immunity, psycho-immunity, psychological well-being, psychological safety, consciousness, meaningfulness, security, adaptation, Russian studies

Highlights

- ▶ Psychological immunity is a complex phenomenon that helps to maintain the state of psychological well-being through the sense of security.
- ▶ Psychological immunity effects everyday minor stressor events and becomes most obvious

during adaptation failures under the influence of extreme stressors.

► Psychological immunity is worldview characteristic that manifests itself in everyday life through consciousness and meaningfulness.

► The concept of psychological immunity is interdisciplinary and international which allows researchers to enrich its understanding with data from psychology-related disciplines and other cultures.

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Introduction

Psychological immunity is a new and poorly understood concept in Russian psychology. Meanwhile, most recent studies in this field suggest various concepts that describe content, structural, and functional characteristics of psychological immunity, as well as tools for its diagnostic, development, and correction.

By analogy with the physical immunity of the organism, psychological immunity protects the human psyche from the harmful effects of the external and internal environment by recognizing potential dangers, activating and mobilizing resources to overcome the negative effects through a directed immune response. Psychological immunity 'memorizes' the characteristics of negative impacts and decreases the intensity of their re-experiencing. We should note that psychological immunity protects individuals against extreme stressful effects (for example, experiencing the loss of a loved one), as well as against the effects of minor, regular stressor events (for example, waiting in a traffic jam, short-term communication with unpleasant people, etc.).

However, no fundamental works are available in Russian scientific literature that address the issue of psychological immunity. Therefore, the purpose of this study is to provide a literature review of available Russian studies of psychological immunity and systematize the authors' views. Using the abstract-logical method, we will first consider theoretical and empirical works of psychologists. Subsequently, we will examine the works of authors of other humanitarian areas of scientific knowledge. In the scientific literature the earliest mentions of psychological immunity date back to 1995. Therefore, the works of European and American psychologists underlie the subsequent description of this concept. Having established the similarities and differences in their ideas, we will examine the general aspects of the concept of psychological immunity, its functions and content, which will enable us to formulate a common definition and to discuss possible future research directions.

Theoretical Basis

Back in 1995, being guided by the principles of positive psychology, health psychology, and A. Antonovsky salutogenic approach, Hungarian psychologist A. Olah defined psychological immunity as a multidimensional but integral phenomenon that combines all the adaptive resources (cognitive, motivational, and behavioral) of an individual, which contributes to maintaining an optimal mental state in stress situations and ensuring healthy mental development (Olah, 2009).

A. Olah developed the technique for diagnosing psychological immunity that contained 16 scales (optimism, self-control, coherence, self-esteem, creativity, etc.) representing the components of psychological immunity. Several studies were conducted with the use of this technique. For example, Szy (2016) compared two groups of subjects: (a) a group comprised the subjects aged 20–25 years and (b) a group comprised the subjects 50–75 years.

She concluded that because of the increased consciousness and decreased negative emotional reactions psychological immunity is higher in older age. However, this technique is neither modified nor translated to be available to Russian readers. Psychological immunity does not manifest itself in everyday life. Consequently, the use of diagnostic tools for its studying seems to be inappropriate.

The ideas of A. Olah underlay the works of Indian psychologists Bhardwaj and Agrawal (2015). Thus, they proposed a new concept of psychological immunity and defined it as a five-component model of psycho-immunity (Pentacle model of Psycho-Immunity), consisting of self-esteem, consciousness, emotional maturity, psychological well-being, and positive memories of the past.

American psychologist D. Gilbert interprets psychological immunity as a mental phenomenon that protects “the human mind from the feeling of misfortune” (Gilbert, 2017, p. 199). The psychological immune system must find a balance between negative effects of the environment (loss, grief, failure, etc.) and mental responses to them (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). Kagan (2006), another American psychologist, consider psychological immunity as a defense and survival mechanism and defines it as a genetically determined program of protection, preservation, and improvement of personality, psychological well-being, property, and possession. According to H. Kagan, property and possession mean any types of property (movable, immovable, and intellectual) and the phenomena of reality (relationships, groups of people) with which individuals identify themselves and which determine their self-esteem, identity, well-being, and life activities.

Ferencz (2008) believes that the psychological immune system is a structure that creates a positive internal emotional background when confronted with the negative influence of the external environment. She argued that the psychological immune system is formed in childhood; the analysis of early memories can elucidate its dynamics. If an individual has memories of his/her own value for significant Others, experience deep emotional interpersonal relationships, courage, confidence, as well as solitude and loneliness, then

his/her psychological immune system provides better 'protection' in stressful situation, compared to those not having such an experience in childhood.

Murray & Schaller (2015) take a slightly different view of the essence of psychological immunity. They introduced the concept of "behavioral immune system", which is triggered every time when individuals face the threat of infectious diseases. Kenrick (2010) and Mortensen et al. (Mortensen, Becker, Ackerman, Neuberg, & Kenrick, 2010) conducted a series of experiments proving that physical immunity starts to prepare an immune response even when instead of a real threat of infection, there is a social threat (for example, the threat of a fight or violence). This clearly demonstrates, firstly, the close relationship between the physical and the mental, and secondly, the presence of a structure responsible for changing behavior under adverse conditions.

Besides, some of the representatives of European popular literature concentrate on certain aspects of psychological immunity. Thus, Norwegian psychologist Brurson (2015) considers psychological immunity as a mechanism of resistance to negative obsessive thoughts ('viruses') that affect human functional state and behavior.

Thus, psychological immunity is an applied concept actively developed in scientific literature that provides comprehensive insights into human adaptive abilities. In this regard, the development of this concept in Russian psychology is of our particular interest.

Results

In Russian scientific literature Anuashvili (2008) was the theorist who provided a detailed description of the phenomenon of psychological immunity. Thus, A. N. Anuashvili describes the patterns of information perception from the standpoint of the wave model of the brain and the concept of the structure of the psyche and the characteristics of human interaction in space.

Anuashvili (2008, p. 73) defines psychological immunity as an attribute of a harmonious individual, providing protection by realistic perception of objective reality and the development of adequate responses. The main function of psychological immunity is to maintain harmony – namely, individuals' ability to adequately perceive information through recognition of certain characteristics of perceived objects and phenomena, insight, foresight, and strategic planning. The author notes that a harmonious individual is characterized by a high level of psychological immunity, which manifests itself in the ability to creative work, meaningful creativity, and harmonization of the environment (see Anuashvili, 2008, p. 74).

In the concept of A. N. Anuashvili, psychological immunity represents an individual cognitive characteristic that determines realistic perception of the surrounding environment.

Following A. N. Anuashvili, most authors consider psychological immunity in the context of human interaction in information space, transforming the original concept into information-psychological immunity.

Luchinkina (2015) defines informational-psychological immunity as an integral personality trait that enables critical analysis and transmission of information. In turn, Rashitova (2016)

suggests that information-psychological immunity has a three-component structure and consists of the following components: (a) cognitive component (comprehension of information and its critical analysis); (b) personality-motivational component (information needs, motives, interest, and preference for information channels), and (c) behavioral component (methods and techniques for working with information, attitudes, relations, abilities, and skills of safe behavior in information space).

Kireichev (2015) interprets psychological immunity as a result of 'immunization' of individuals from the destructive information impact. By acquiring psychological knowledge about behaviors in various situations and shaping the ability to use these patterns, individuals develop their psychological immunity which may potentially protect them from psychological problems. Training aimed at developing constructive forms of behavior in conflicts and self-regulation skills appears to be the main method for the development of psychological immunity (Kireichev, 2015).

Vedzhatova & Menaeva (2016) studied the informational-psychological immunity in students and defined it as the resistance of the psyche to the negative and destructive effects of the information environment. Information-psychological immunity is a mental filter, which major task is to provide figure-ground perception. The functioning of mental filters is affected by ethnic, social, cognitive, cultural, gender, and other human characteristics. The authors rightly noted that there are no tools for studying information-psychological immunity and psychological immunity as well. Therefore, they focused on studying tolerance of perception.

N. N. Stroev, A. V. Lagun & A. N. Stroev (2018) elaborated the concept of informational immunity. They introduce this concept into the field of economic science and define it as individuals' ability to perceive information based on their beliefs and attitudes, demonstrate criticality and selectivity. The authors suggest that each individual has a basic level of informational immunity, consisting of beliefs and delusion (worldview categories). The impossibility of resisting the negative informational impact (a low level of informational immunity), develops false/illusory beliefs about the surrounding environment.

Other authors consider psychological immunity as a socio-psychological phenomenon.

Vardanyan & Artamonova (2017) consider psychological immunity from the standpoint of the formation of resistance to addictive behavior among adolescents. They interpreted psychological immunity as the ability to master and apply the system of self-regulation, which is activated in risk situations and mobilizes mental stability to overcome or neutralize the threats associated with narcotization. In their study they examined the tendency to addictive behavior in adolescents and then conducted training aimed at the formation of psychological immunity. The training program was designed to develop personal competences through training in self-regulation skills, developing social competence, developing social skills, informing about narcotization, and developing skills to counter the negative effects of the narcotizing environment. After the training, the authors re-measured the tendency to addictive behavior in adolescents and came to the conclusion that training is an effective method of developing psychological immunity (Vardanyan & Artamonova, 2017).

Considering the issue of counteracting the ideology of terrorism among students, Bliznetsova (2013) defines socio-psychological immunity as the resistance to social pressure and counteraction to traumatic circumstances. The author explains the necessity of identifying psychological mechanisms that create the prerequisites to counteract the terrorist ideology. From her point of view, knowledge about the essence of terrorism is paramount. This knowledge determines moral attitudes and, consequently, training in self-regulation skills to ensure freedom and willingness of moral choices (Bliznetsova, 2013).

In Russian scientific literature, psychological immunity is not only an attribute but also a neoformation arising from the integration of life experience.

Kanevskaya (2012) considers psychological immunity as a result of sustainable development of an individual through adaptive overcoming of life difficulties and stressful situations.

Semenov (2017) introduces the concept of the psychological immunity of the subject of labor. He defines psychological immunity as an individual's ability to predict and level stress states in everyday and professional activities. The main function of psychological immunity is to counteract the negative informational impact of others. Once again, psychological immunity protects individuals from destructive or undesirable information. In this case, psychological immunity may be interpreted as critical thinking, which, in turn, provides the ability to change non-adaptive (destructive) stress responses to adaptive (constructive) ones.

In his concept of psychological immunity, D. S. Semenov introduces the component of consciousness as a key factor in its effective functioning. D. S. Semenov carried out the study of the components of professional and psychological health among medical personnel and demonstrated that constant reflection (as a manifestation of consciousness) helps increase the level of professional skill and preserve professional health. Therefore, by developing consciousness, individuals develop the ability to resist negative external influences and to analyze the current state and emotional reactions, which ultimately leads to psychological well-being. This state of psychological well-being is the result of the functioning of psychological immunity.

The review of Russian researchers' views on the phenomenon of psychological immunity demonstrates that there is no unambiguous definition of this concept. However, all the authors agree that:

(a) Psychological immunity is a personality trait that enables the successful overcoming or prevention of negative external or internal influences.

(b) Psychological immunity is a cognitive-behavioral category, where its key function results from the perception, processing, and retransmission of information.

(c) Psychological immunity is somehow associated with consciousness, self-regulation, awareness, and meaningfulness.

Nevertheless, diagnosing psychological immunity remains an open question. Psychological immunity is a cognitive-behavioral category that includes values, meanings, beliefs, and delusions and may differ from individuals' expectations under real circumstances. Therefore, the use of textual methods appears to be invalid. The same applies to the methods of

development and correction.

Our literary review would not be complete without considering the views on psychological immunity in other humanitarian fields of knowledge.

The sociological theory of social immunity provides the most elaborated concept of non-physical immunity (Babloyan & Vasilenko, 2018; Zhapuev, 2013; Khramtsova, 2015).

Being guided by the provisions of the paradigm of 'organicism' and generalizing other sociologists' views on protective mechanisms of society, Zhapuev (2013) introduced his concept of social immunity. On the one hand, he defines social immunity as the ability of society to resist social risks (mainly the intervention of alien values, norms, and ideals). On the other hand, social immunity is a defense mechanism regulating the level of risks and threats of alien intervention and maintaining stability and high adaptability of society. He suggests that there is a congenital and acquired social immunity. Congenital (basic) social immunity is provided by the institutional system of society and its values; acquired social immunity is the result of overcoming external threats (Zhapuev, 2013).

Khramtsova (2015) expanded the concept of social immunity by adding the following levels of its manifestation: (a) personal-individual, (b) social, (c) political, and (d) global-local. The personal-individual level represents the greatest interest for the present study, because according to F. I. Khramtsova, this level results from the process of internalization (during socialization) of social norms, values and ideals, the formation of national and gender identities. In fact, this is psychological immunity.

In turn, Babloyan & Vasilenko (2018) establish diagnostic features that can determine the current state of social immunity of society: sociocultural integrity, social health, level of social polarization, demographic index, etc., which determines the practical relevance of the theoretical model of social immunity.

Pedagogical science has also contributed to supporting the paradigm of 'organicism'. Spiritual and moral immunity is considered as a pedagogical category, which, being a result of civic and patriotic education, describes an individual's ability to resist the negative influences of the external and internal environments through the stability of meanings and values (Gilmeeva, 2015).

The concept of mental immunity by Sidorov (2015) attracts a great interest. It represents a compilation of all the types of immunities and is aimed at maintaining integrated (mental) human safety. He defines mental immunity as a system of biopsychosocial and spiritual protection that provides a high level of comprehension of values and meanings, manifesting themselves in a stable identity and adaptive forms of behavior.

Sidorov distinguished the following types of immunity: (a) biological – protecting the body from infections and invasions, changing its cells, and maintaining physical health; (b) psychological – protecting individuals and society from traumatic impacts of the external and internal environments and maintaining psychological health; (c) social – protecting individuals and society from negative impacts of sociogenic factors and maintaining social health; (d) spiritual and moral – protecting individuals and society from destructive impacts and maintaining spiritual and moral health (Sidorov, 2015a, 2015b).

Mental immunity is the main mechanism of counteracting various negative impacts including globalization, which imposes values and ideals that are alien to harmonious and prosperous life of individuals (e.g. thoughtless consumption, unrealistic ideals of a successful and beautiful person, etc.), but beneficial for the formation of mass culture that facilitates the processes of managing and manipulating the masses (Sidorov, 2015a).

Despite the fact that Russian scientists started to examine the issues of non-physical immunity much later than their western colleagues, sufficient theoretical materials have been accumulated for conceptualizing the concept of psychological immunity and determining its structure and functions.

Discussion

Being guided by the above stated, we consider psychological immunity as a cognitive-behavioral construct that is developed during ontogenesis (Ferencz, 2008; Szy, 2016) and provides a sense of psychological well-being (Kuznetsova, 2017) and a state of psychological safety (Grachev, 2003; Krasnyanskaya & Tylets, 2015; Moskalenko, 2018). Psychological immunity cannot be innate, because individuals are born only with certain unconditioned reflexes that ensure their survival in the first month of life (Vygotsky, 2019). Subsequently, emotionally interacting with surrounding adults, the child learns the appropriate ways of reacting and counteracting various environmental factors (including negative ones) that affect the entire mental structure. Therefore, psychological immunity is rather an integral psychological construct, than a discrete attribute, process or ability. Psychological immunity is an attribute, a process, and an ability.

By the analogy of physical immunity, we should distinguish the following functions of psychological immunity (Moskalenko, 2018):

1. Monitoring (tracking) the current situation for its potential danger.
2. Maintaining the state of psychological safety and the sense of psychological well-being.
3. Capturing the effect of any stimulus and reducing the intensity of response to it in case of invariance of the stimulus and in the event of its repeated exposure without increasing intensity.
4. Relief from negative feelings.

We should note that psychological immunity appears to be rather the concept of the psychology of everyday life, than that of extreme life situations. Undoubtedly, maintaining psychological well-being under the influence of excessive stresses is a part of the functional range of psychological immunity. However, an ordinary person who is not involved in extreme professional activities and in military operations, not being in the zone of natural and man-made disasters, rarely experiences the impact of stressors. The stressors of everyday life that are almost imperceptible but have a cumulative effect influence individuals much more often but less intensively. Involving the entire protective system of the psyche is excessively energy-consuming (Garkavi, Kvakina, & Ukolova, 1990). Therefore, psychological immunity most easily manifests itself when exposed to stressors of low or medium intensity. This proposition explains the difference between

psychological immunity and stress resistance, which are similar, but nonetheless different concepts. In most definitions, stress tolerance is considered as a volitional characteristic of personality that provides conscious control of emotions and behavior in situations that individuals characterize as stressful ones (Mikheeva, 2010). Psychological immunity, as noted above, manifests itself in everyday situations that are ordinary for individuals; they are rather unpleasant than extreme or extraordinary. Therefore, there is no need for conscious regulation. In addition, conscious regulation of emotions can contribute to distortion of perception, which, in turn, can transform everyday situations into stressful ones; this contradicts the importance of consciousness (Rashitova, 2016; Semenov, 2017; Sidorov, 2015b; Bhardwaj & Agrawal, 2015) and meaningfulness (Szy, 2016) as basic personality traits of psychological immunity, ensuring its sufficient level.

Aversion as a reaction to potentially unpleasant impacts (Kenrik, 2010; Mortensen et al., 2010; Murray & Schaller, 2015) and anxiety as a reaction to a potentially harmful effects (Gilbert, 2017; Kagan, 2006) are the signaling mechanism that trigger the development of the psycho-immune response. We should note here that using these signaling mechanisms individuals do not oppose themselves to the surrounding circumstances to which they must adapt (i.e. change themselves under their influence) (Kolpakova, 2015). They rather exhibit the unity of their external and internal worlds acquired in result of consciousness and meaningfulness.

In conclusion, we should note that the concept of psychological immunity requires more detailed analysis in Russian scientific literature and provides more questions than answers. Nevertheless, the development of this concept is promising, because it allows researchers to combine disparate views of the mechanisms of maintaining psychological well-being and safety. Clearly, further empirical research will be required (a) to elaborate the concept of psychological immunity by studying meaningfulness and consciousness, mutual influence and interdependence of psychological immunity and related concepts (stress tolerance, adaptability, psychological defense, etc.) and (b) to develop diagnostic tools or modify the existing ones (A. Olah technique).

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Views on Psychological Immunity in Russian Psychology

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Original research article

Risk Assessment of Professional Emotional Burnout Development in School Teachers With Different Activity Profiles

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Abstract

Introduction. The relevancy of the study is attributed to the increase of professional and social requirements for teachers work in the course of school education reforming, which is accompanied, undoubtedly, by their high emotional tension. In this study, we aimed to assess the risk of professional emotional burnout in school teachers with different activity profiles. It is the first time that the authors make a comparative study of phase development and pronounced burnout symptoms in primary school teachers, subject teachers and school authorities. Analysis of correlation relationships between age, teaching experience, neuropsychic adaptation performance and emotional burnout in school teachers with different activity profiles is carried out.

Methods. The study included 145 teachers at the age of 24–68 years old from 6 Magadan schools. In the course of the study, the teachers were divided into three groups taking into account teachers' activity profile. Emotional burnout indices were measured using questionnaire "Diagnostics of Emotional Burnout Level" by V. V. Boyko. To determine the level of neuropsychic adaptation, the questionnaire by I. N. Gurchik was used.

Results and Discussion. Stage formation and evidence of burnout symptoms in school teachers with different activity profiles are studied in comparative aspect. Correlation relationships between age, teaching experience and emotional burnout in school teachers with different activity profiles are found out. The level of teachers' neuropsychic adaptation is studied. Correlation relationships between neuropsychic adaptation and emotional burnout in school teachers with different activity profiles are found out. It is shown that the development of emotional burnout syndrome in school teachers takes place against the background of neuropsychic adaptation disorder and neuroticism formation.

Keywords

primary school teachers, subject teachers, school authorities, activity profile, emotional burnout syndrome, neuroticism, neuropsychic adaptation

Highlights

- ▶ In three groups of survey teachers with different activity profile, "tension" and "exhaustion" phases are not developed; "resistance" phase is in the development stage.
- ▶ A great number of correlation relationships between age, teaching experience and emotional

burnout symptoms are found out in the group of subject teachers, less – in the group of primary school teachers, no such are found in the group of school authorities.

► Ascertained positive correlation relationships between neuropsychic adaptation level and emotional burnout phases and symptoms testify to the risk of syndrome development in teachers with psychic adaptation disorder.

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Introduction

In the context of education reform in Russia, the role of professional and social requirements to teachers' activity has been increasing. The profession of a teacher belongs to the job cluster with heightened risk of development of neuropsychic disorders, psychosomatic and other diseases (Mitina & Asmakovets, 2001; Sorokina & Popova, 2012). Professional activity of a school teacher is accompanied by an increased emotional tension and is associated with continuous effect of conflicting, intensive emotional stress factors on the nervous system (Akhmerova, 2010). At a certain level of organism tension, numerous symptoms of professional burnout syndrome tend to appear (Boyko, 2004; Maslach & Leiter, 2008; Maslach, Schaufeli, & Leiter, 2001).

Literary data testify to the fact that neurotic behaviour, irritability, anxiety, and emotional lability increase along with an extension of teaching experience. Thus, statistically significant relation between burnout and age, sex and marital status has been stated in the course of research studies (Al-Asadi, Khalaf, Al-Waaly, Abed, & Shami, 2018). It is shown that age has inverse correlation with emotional burnout (Russell, Altmaier, Van Velzen, 1987; Lackritz, 2004). Teachers with long-term professional teaching experience (from 10 to 20 years) are most vulnerable to burnout (Molchanova, 2009). The following factors have the greatest impact on teachers' psychological health: psychological discomfort, social disadaptation, life-organization pattern, and emotional disorders (Sorokina & Popova, 2012).

Teaching profession profile defines the degree of risk of psychological burnout development (Molchanova, 2009, 2011). L. N. Molchanova and other research fellows (Molchanova, 2009, 2011; Tsigilis, Zournatzi, & Koustelios, 2011) have shown that the most stressful is the work of primary school teachers. The environment of their educational work is associated with a relatively constant group of pupils of the same age, paperwork overload, obligatory homework checking and preparation for the lessons, in many cases at the expense of both family and personal life and of leisure time. Vice versa, subject teachers have mixed age enrolment and periodic frequency of contacts with one and the same pupil enrolment (Molchanova, 2009, 2011; Tatar & Horenczyk, 2003).

Some of the researchers have found out that primary school teachers are more susceptible to severe emotional exhaustion and less – to depersonalization, than their secondary school colleagues (Unterbrink et al., 2007; Vercambre, Brosselin, Gilbert, Nerrière, & Kovess-Masféty, 2009). The others have shown that secondary school teachers do not differ from their primary school

colleagues in emotional exhaustion (Byrne, 1991; Van Horn, Schaufeli, Greenglass, & Burke, 1997). There are reports that burnout is more prevailing among secondary school pedagogues than among primary school teachers (Anderson & Iwanicki, 1984; Schwab, Jackson, & Schuler, 1986). In the course of the research, no significant differences are found between school principals and teachers in the following burnout aspects: emotional exhaustion, depersonalization and job satisfaction (Sari, 2004). On the other hand, managers are more susceptible to burnout than subordinate employees, since they have to be in charge of many issues. This results in fatigue from responsibility (Friedman, 2002). Work overload and interaction with staff are among the predictors of job dissatisfaction and psychogenic disorders (Friedman, 2002; Cooper & Kelly, 1993).

According to the data in literature, both individual and personal characteristics of the teachers and stress at work are associated with burnout indices (Cano-Garcia, Padilla-Muñoz, & Carrasco-Ortiz, 2005). However, neuroticism is a general predictor of all burnout aspects (Kokkinos, 2007). Emotional burnout results in the increased risk of both formation of different psychogenic-conditioned disorders and disadaptation processes (Maslach & Leiter, 2008; Schaufeli, Leiter, & Maslach, 2009). Our studies have shown (Bartosh, Bartosh, & Mychko, 2018) that professional activity and social dissatisfaction are among the components of teachers' psychic adaptation disturbance. The teachers of the Magadan Region are characterized by increased fatigability, weakness, inactivity, and instability of nervous processes (Bartosh & Bartosh, 2010). However, comparative study of teachers of different disciplines is insufficient. In view of the foregoing, the study of health disorder risk of Magadan school teachers with different activity profiles is of our main interest.

In this research, we *aim* to assess the risk of professional emotional burnout in school teachers with different activity profiles.

Methods

Totally 145 female teachers from 6 Magadan schools aged from 24 to 68 years old were included in the study, of which 36 individuals were primary school teachers (Group 1). The mean age was $43,7 \pm 1,75$ years, teaching experience – $20 \pm 1,82$ years. We also included in the study 95 subject teachers (Group 2) with the mean age $44,4 \pm 1,17$ years and teaching experience of $21 \pm 1,14$ years. The study included 14 school authorities representatives: school principals and deputy principals (Group 3); the mean age – $48,2 \pm 2,40$ years, professional service – $27 \pm 2,39$ years. The study was carried out at the end of the school year (in May). Participation in the study was voluntary, with informed consent and in compliance with biomedical ethics requirements of the Declaration of Helsinki.

To evaluate the risk of professional emotional burnout formation, we used questionnaire "Diagnostics of Emotional Burnout Level" proposed by V. V. Boyko (Boyko, 2004; Raygorodsky, 2011). G. Selye's theory of stress formation and development was taken as a methodological basis. Syndrome of emotional burnout (SEB) development includes 3 phases ("tension", "resistance", and "exhaustion"); each of these includes 4 symptoms. The intensity of each symptom varies within 0–30 scores: 9 or less – symptom has not developed; 10–15 scores – symptom is developing; 16 scores or more – symptom had developed. In each of the phases, estimation within range of 0–120 scores can be made: 36 scores or less – phase has not formed; 37–60 scores – phase is forming; 61 scores or more – phase had formed. The total: 108 scores or less – low values, 109–108 scores – mean value, 181 scores or more – high values (Boyko, 2004; Raygorodsky, 2011). Neuropsychic adaptation (NPA) was analyzed using the questionnaire which allows to diagnose prenosological, subclinical status similar to neurosis-like disorders (Gurvich, 1992).

Statistical analysis of the data was carried out using license software packages Excel-97 and Statistica-10. The parameters were processed by the methods of parametric and nonparametric statistics. Sampling check for normalcy of distribution was made using the Shapiro–Wilk test. Reliability of differences between the scores was analyzed using the Student’s t-test (under conditions of normal distribution) and the Mann–Whitney test (under conditions of abnormal distribution). Calculations of the arithmetic mean (M), its error ($\pm m$), median (Me) and interquartile range at 25th and 75th percentiles (C25 и C75) were made. The differences were considered statistically significant at $p < 0,05$. Dependence of the parameters was stated using Spearman’s correlation coefficient.

Results and Discussion

Comparative analysis of mean values of emotional burnout level in survey groups of teachers with different activity profile is shown in Table 1.

Table 1					
<i>Indices of emotional burnout symptoms manifestation among teachers of different groups</i>					
Groups	Emotional burnout syndrome				Total score
	Tension phase, symptoms $M \pm m$ (Me; C25, C75)				
	t 1	t 2	t 3	t 4	
1	11 \pm 1,5(10;3,8,20)	6 \pm 0,8(6;3,10)	5 \pm 0,1(2;0,7)	8 \pm 1,3(5;2,8,12)	30 \pm 4,0(25;14,41)
2	12 \pm 0,9(12;3,5,20)	7 \pm 0,5(8;3,10)	6 \pm 0,7(5;0,10)	8 \pm 0,6(5;3,11)	33 \pm 2,0(33;17,45)
3	12 \pm 2,3(10;6,18)	5 \pm 1,1(4;0,8,8)*2-3	5 \pm 1,4(4;0,6)	8 \pm 2,4(6;0,15)	30 \pm 5,6(27;14,41)
Groups	Resistance phase, symptoms				Total score
	r 1	r 2	r 3	r 4	
	r 1	r 2	r 3	r 4	
1	14 \pm 1,1(15;10,19)	10 \pm 0,1(10;5,15)*1-3	13 \pm 1,5(12;5,19)	15 \pm 1,5(17;7,22)	51 \pm 3,3(50;39,67)
2	16 \pm 0,7(17;12,21)*1-2	11 \pm 0,6(10;7,15)	10 \pm 1,1(7;2,5,20)	14 \pm 0,8(15;7,20)	52 \pm 2,2(49;37,67)
3	16 \pm 1,4(17;13,17)	14 \pm 1,8(16;8,19)	13 \pm 2,3(11;5,20)	15 \pm 2,2(17;8,22)	58 \pm 4,1(60;46,66)

Table 1

Indices of emotional burnout symptoms manifestation among teachers of different groups

Groups	Exhaustion phase, symptoms				Total score
	e 1	e 2	e 3	e 4	
1	9 ± 1,3(7;2,8,13)	6 ± 0,9(4;3,10)	7 ± 0,1(5;0,10)	12 ± 1,2(10;8,14)	34 ± 3,1(32;21,42)
2	9 ± 0,8(10;3,14)	8 ± 0,6(5;3,12)	7 ± 0,7(5;0,10)* ²⁻³	10 ± 0,8(8;5,15)	35 ± 2,1(31;20,46)
3	7 ± 1,4(8;2,8,10)	6 ± 0,1(5;3,8)	4 ± 1,2(5;0,5)* ¹⁻³	8 ± 1,1(8;6,10)* ¹⁻³	26 ± 3,2(26;16,33)* ¹⁻³

Emotional burnout symptoms: t 1 – psychological traumatic experience; t 2 – dissatisfaction with oneself; t 3 – feeling of “being trapped in a cage”; t 4 – anxiety and depression; r 1 – inadequate emotional specific reaction; r 2 – emotional and moral disorientation; r 3 – widening of emotional thriftiness area; r 4 – professional duties reduction; e 1 – emotional deficiency; e 2 – emotional isolation; e 3 – personal detachment or depersonalization; e 4 – psychosomatic and psycho-vegetative disorders.

** – significant difference of survey indices between teachers from corresponding groups at p < 0.05*

Let us note that in three groups, tension phase is not developed. It is only the symptom of psychological traumatic experience that is formed. The rest of the three symptoms of tension phase are not developed. At that, significantly lower indices of “dissatisfaction with oneself” symptom among the representatives of Group 3, as compared with Group 2 ($p < 0,05$), can be observed. It can be expected that the representatives of school authorities are satisfied with their job and cope with the duties at the current position.

In all three groups, resistance phase is at the stage of development, and 4 symptoms of the phase are present (Table 1). Moreover, we have recorded a developed symptom of inadequate emotional specific reaction among the representatives of Groups 2 and 3, which was statistically significant and exceeded the mean value of Group 1 ($p < 0,05$). The symptom of emotional and moral disorientation was the most severe among school authorities representatives ($p < 0,05$) (Table 1).

In all three groups, exhaustion phase is not developed; its component symptoms are not present. At the same time, there were reliable differences in the expressed values. The lowest score of exhaustion phase index is registered in the representatives of Group 3 ($p < 0,05$). Significantly lower indices of both depersonalization and psychosomatic and psycho-vegetative disorder symptoms were confirmed in the same group ($p < 0,05$) (Table 1).

Figure 1 displays the data of percentage distribution of the developed burnout phases (61 scores and more) and emotional burnout syndrome in the teachers with different activity profile.

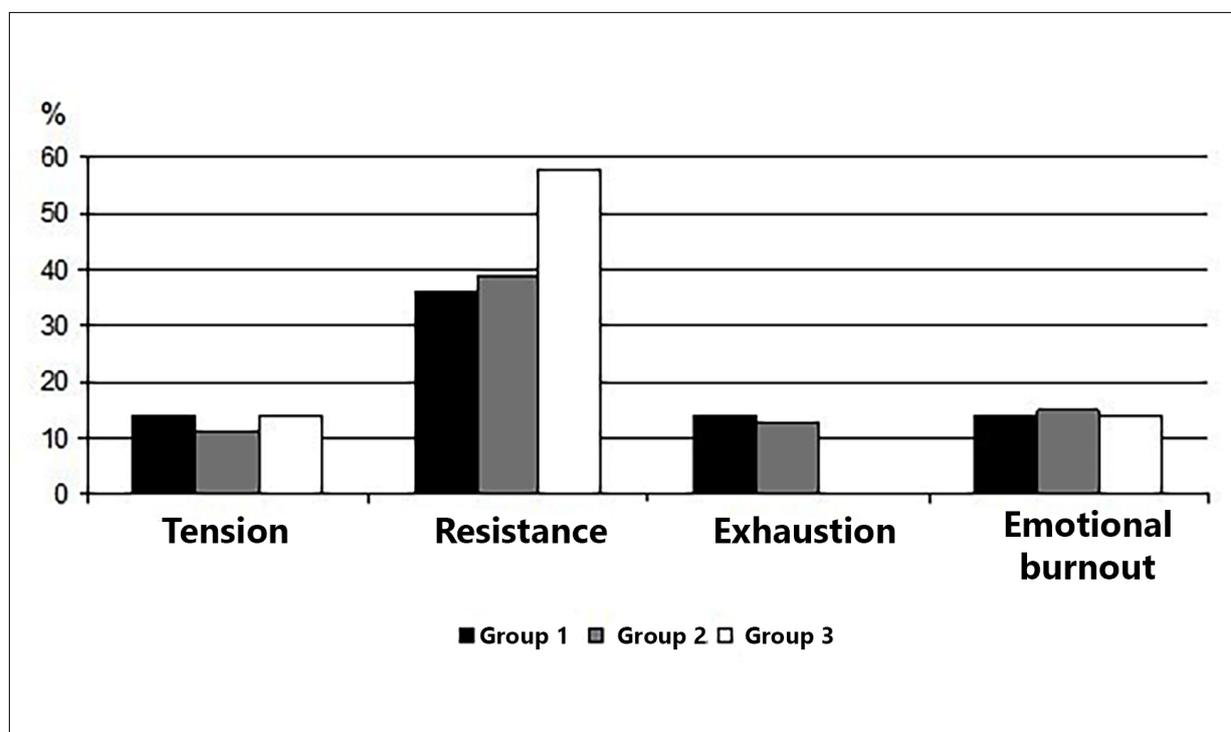


Figure 1. Percentage distribution of the developed phases and emotional burnout state in the teachers with different specialties

Conventional notation: group 1 – primary school teachers, group 2 – subject teachers, group 3 – school authorities representatives

Figure 1 illustrates that 11–14 % of teachers (except school authorities) suffer from tension and exhaustion phases. The syndrome of emotional burnout is diagnosed in 14–15 % of individuals of the three groups (had more than 181 scores in total), viz. 5 primary school teachers, 14 subject teachers, and 2 representatives of school authorities (school principal and deputy principal) (Fig. 1). Resistance phase is developed in more than a half of school authorities representatives, and in more than a third of individuals of other groups. They are characterized by a search for psychological comfort by means of emotional defenses, resulting in psychoemotional resources exhaustion.

Figures 2–4 display the data of percentage distribution of the developed symptoms (16 scores and more) of the three phases of emotional burnout syndrome in teachers of different groups.

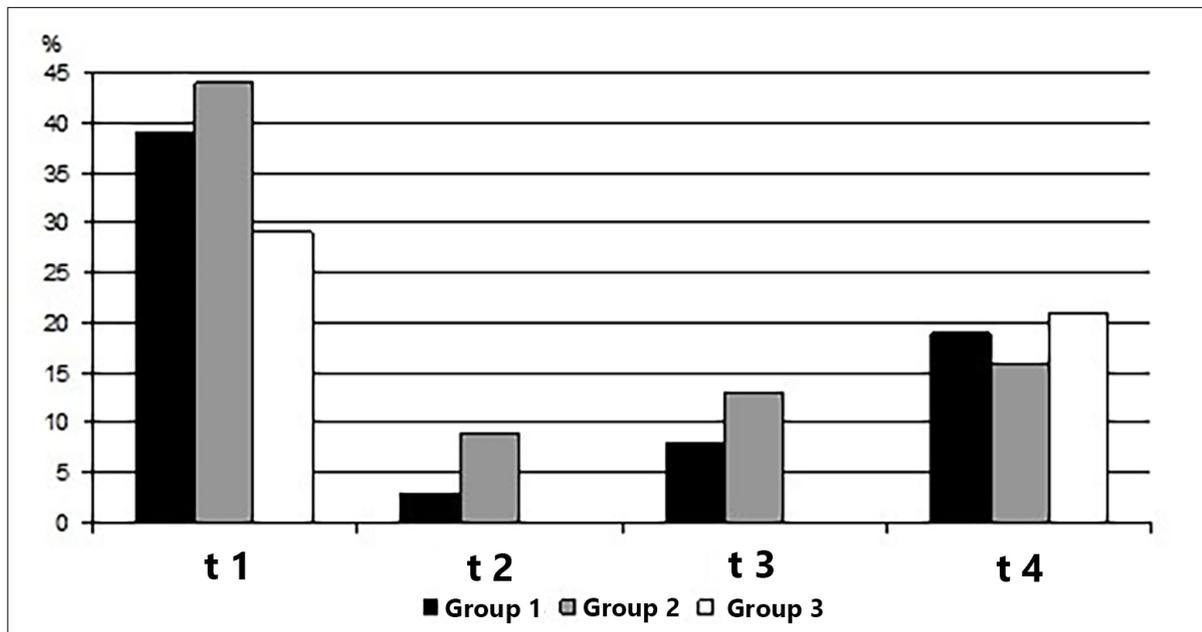


Figure 2. Percentage distribution of tension phase developed symptoms in teachers of different groups

Conventional notation: group 1 – primary school teachers, group 2 – subject teachers, group 3 – school authorities representatives; t 1 – psychological traumatic experience, t 2 – dissatisfaction with oneself experience, t 3 – “being trapped in a cage” experience, t 4 – anxiety and depression experience

Figure 2 shows data on psychological traumatic experience syndrome having been diagnosed in most survey teachers in the three groups. This is indicative of the fact that frustration, indignation and annoyance at professional activity factors are being accumulated; worry and dissatisfaction with oneself are being formed. Subsequently, anxiety and depression symptoms are beginning to develop. The symptoms of “being trapped in a cage” and dissatisfaction with oneself are not formed in the group of school authorities representatives. The latter is practically not pronounced in primary school teachers.

Figure 3 shows how “deeply” the symptoms of resistance phase in survey individuals are pronounced. Teachers’ mental state is mostly burdened by the symptoms of inadequate emotional specific reaction and professional duties reduction. They are developed in 51–71 % of individuals. The formation of psychological defense takes place mainly through “the limitation of the range and intensity of involving emotions into professional communication against the background of emotional callousness, indifference, and attempt to simplify or reduce emotions-consuming responsibilities” (Boyko, 2004). The symptom of emotional and moral disorientation is diagnosed in more than a half of school authorities representatives. At the same time, in other groups this symptom is manifested at an average in 30 % of individuals. More than one-third of the teachers from three survey groups complain of communication fatigue, reporting the symptom of widening of emotional thriftiness area (Fig. 3).

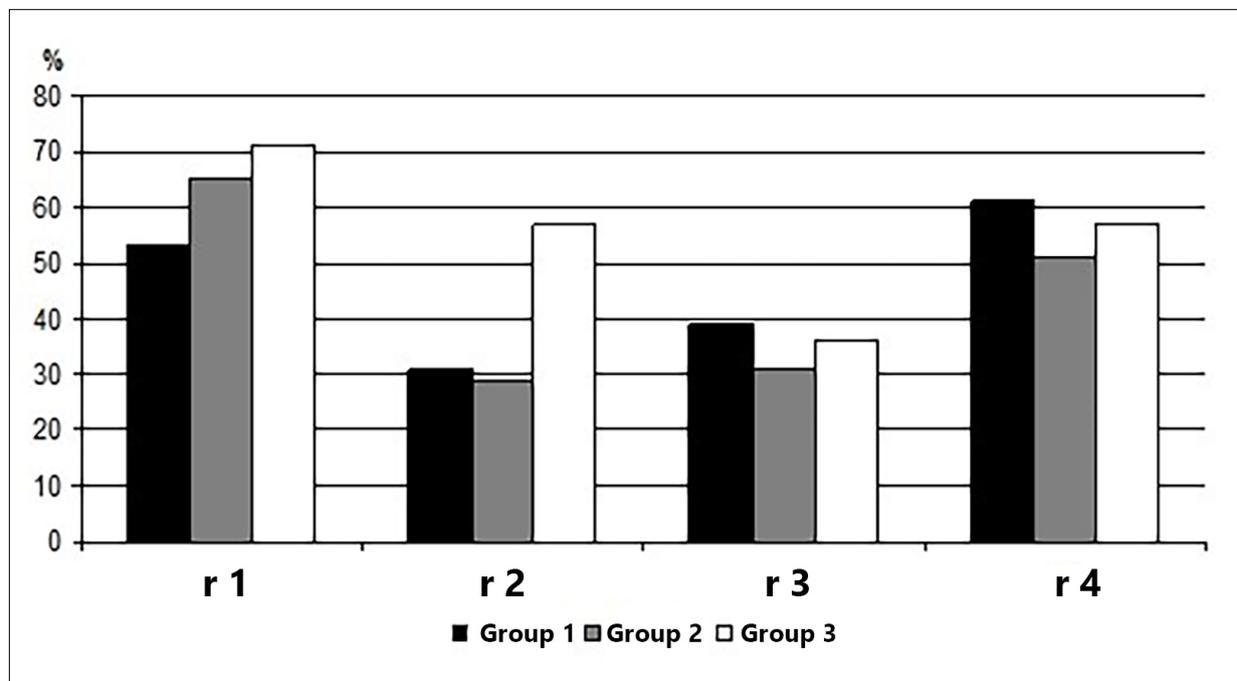


Figure 3. Percentage distribution of resistance phase developed symptoms in teachers of different groups

Conventional notation: group 1 – primary school teachers, group 2 – subject teachers, group 3 – school authorities representatives; r 1 – inadequate emotional specific reaction, r 2 – emotional and moral disorientation, r 3 – widening of emotional thriftiness area, r 4 – professional duties reduction

Figure 4 illustrates percentage distribution of pronounced exhaustion phase symptoms. One can see that the symptoms of emotional deficiency and psychosomatic and psycho-vegetative disorders are found in 25 % of primary school teachers. Positive emotions are observed more and more seldom, whereas negative – in increasing frequency. The change-over of the reactions from emotional level to psychosomatic level becomes apparent. The symptoms of personal detachment or depersonalization are diagnosed in 17–18 % of individuals. In this particular case, burnout, as an emotional protection, doesn't cope with the burden.

No high scores of emotional isolation and depersonalization symptoms are registered among the representatives of school authorities; emotional deficiency symptom is of little frequency as well. However, in 21 % of teachers from Group 3 there have been registered high scores of psychosomatic and psycho-vegetative disorders within exhaustion phase (Fig. 3). It is notable that although we hadn't found out individuals with developed exhaustion phase among school authorities representatives, emotional burnout was registered in 15 % of individuals chiefly owing to the pronounced resistance phase symptoms (Fig. 1–2).

Study of correlation relationships between teaching experience and age in all groups showed positive, reliably high and strong interconnection (0,92–0,94) ($p < 0,001$). Figure 5 (a, b) presents correlation pleiads of age and teaching experience indices in connection with burnout syndrome

indices. The following number of relationships between age and SEB indices is found out: 6 negative relationships – in Group 1; 6 negative relationships and 1 positive with psychosomatic and psycho-vegetative disorders symptom – in Group 2. No correlation relationships between age, teaching experience and SEB symptoms are found in Group 3.

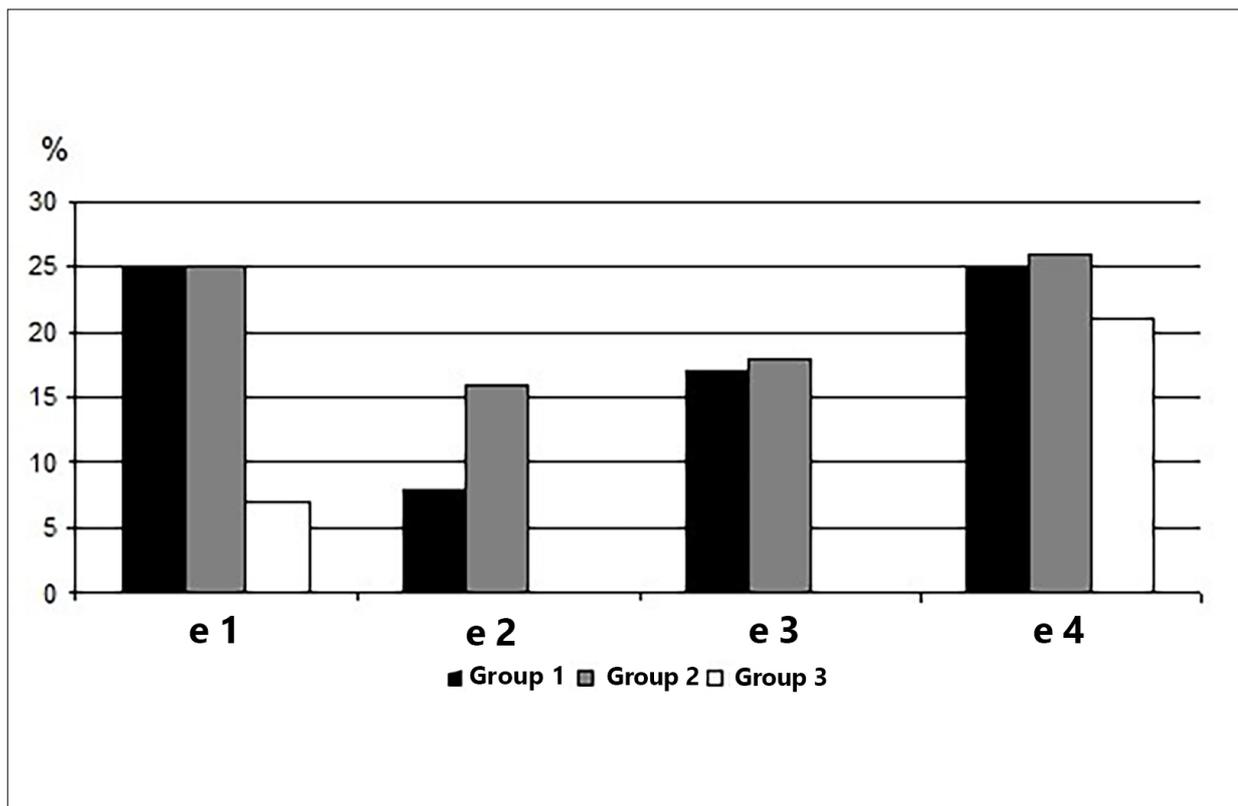


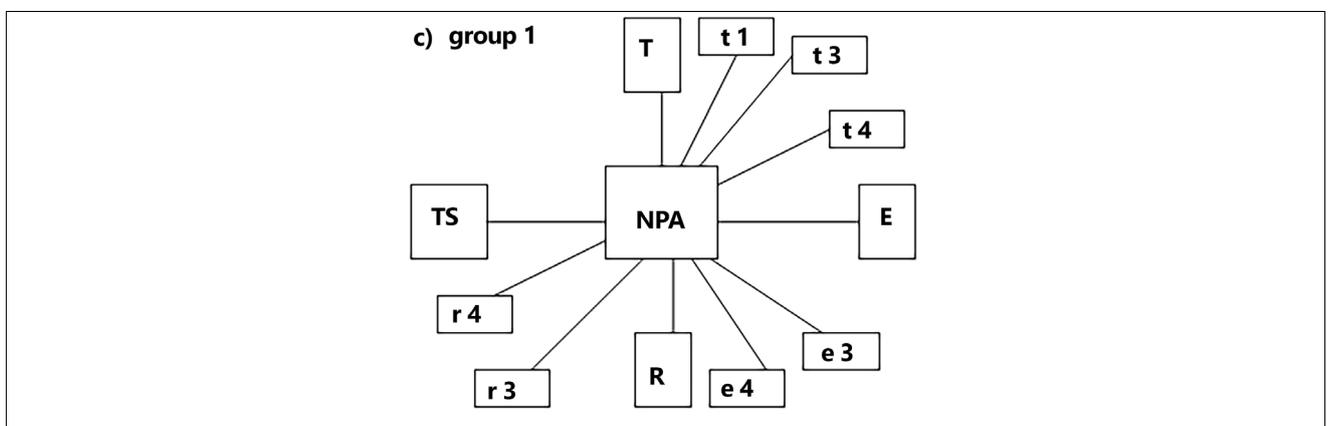
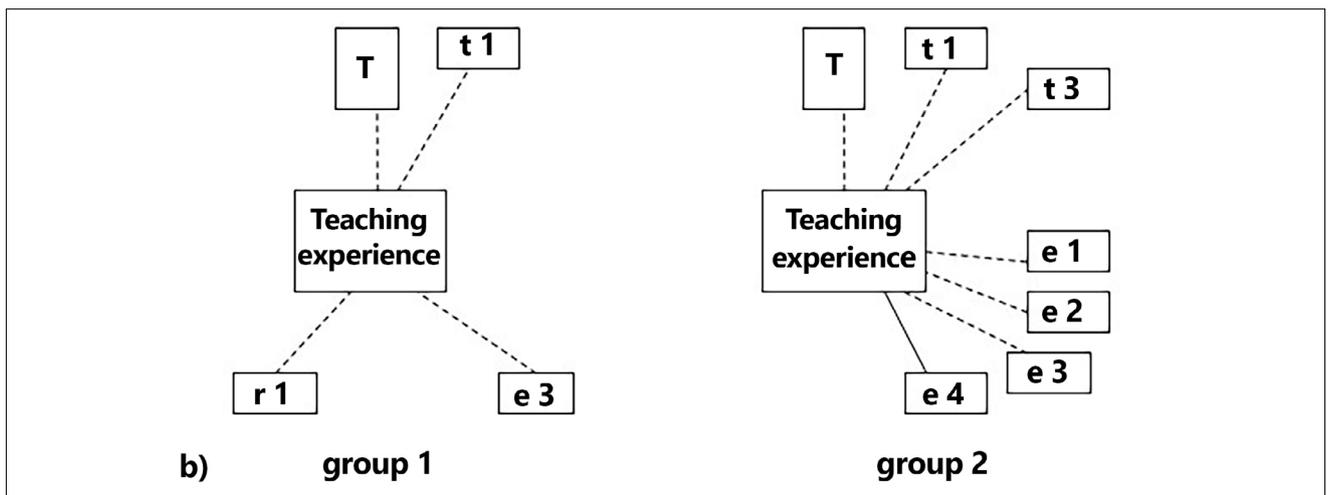
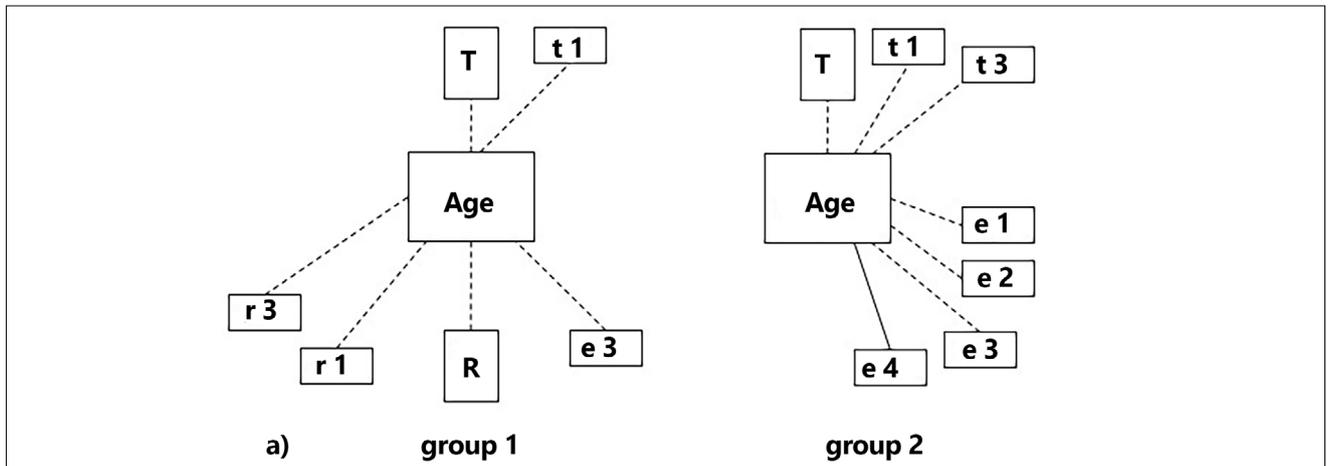
Figure 4. Percentage distribution of exhaustion phase developed symptoms in teachers of different groups

Conventional notation: group 1 – primary school teachers, group 2 – subject teachers, group 3 – school authorities representatives; e 1 – emotional deficiency; e 2 – emotional isolation; e 3 – personal detachment or depersonalization; e 4 – psychosomatic and psycho-vegetative disorders

In Group 1, age index has negative correlation relationship with tension and resistance phases, as well as with the symptoms of psychological traumatic experience, widening of emotional thriftiness area, personal detachment or depersonalization.

In Group 2, as shown in Figure 5a, age index is associated predominantly with 4 symptoms of exhaustion phase and 2 symptoms of tension phase: psychological traumatic experience and feeling of “being trapped in a cage”.

In Group 1, correlation analysis of teaching experience index and SEB symptoms (Fig. 5b) showed a positive relationship to tension phase and single correlation relationships to the symptoms of different phases: psychological traumatic experience, inadequate emotional specific reaction, personal detachment or depersonalization ($p < 0,05$).



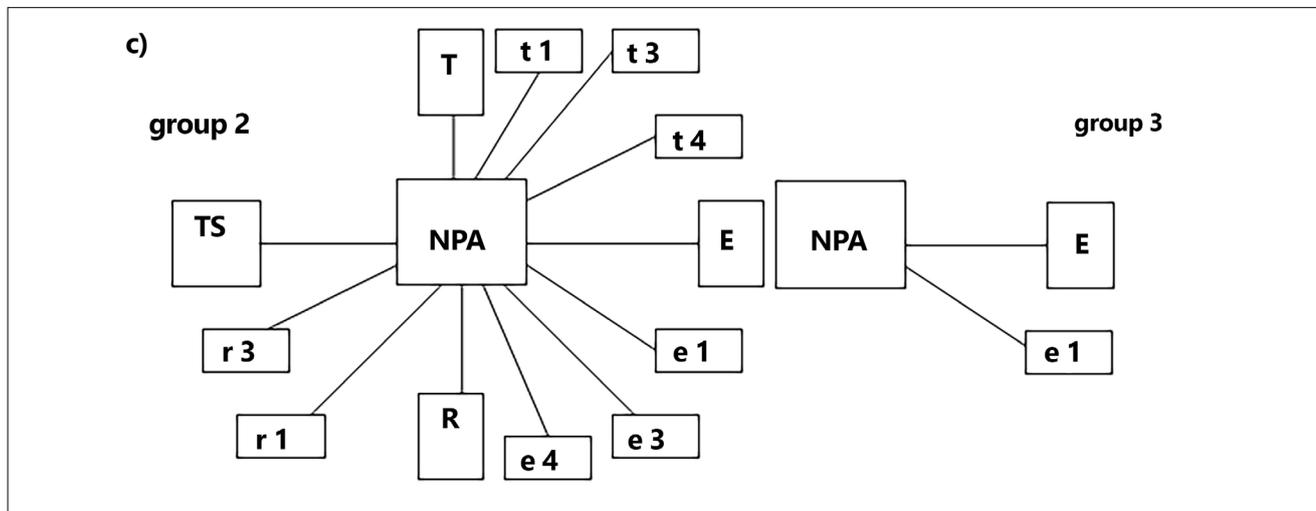


Figure 5. Correlation relationships between age (a), teaching experience (b), NPA (c) and burnout syndrome indices

Legend: T – «tension», R – «resistance», E – «exhaustion», NPA – neuropsychic adaptation; TS – total score of emotional burnout syndrome; t 1 – psychological traumatic experience; t 2 – dissatisfaction with oneself experience; t 3 – feeling of “being trapped in a cage” experience; t 4 – anxiety and depression experience; r 1 – inadequate emotional specific reaction; r 2 – emotional and moral disorientation; r 3 – widening of emotional thriftiness area; r 4 – professional duties reduction; e 1 – emotional deficiency; e 2 – emotional isolation; e 3 – personal detachment or depersonalization; e 4 – psychosomatic and psycho-vegetative disorders; ($p < 0,05$)

It is interesting to note that in teachers from Group 2 correlation relationships between age, teaching experience and burnout symptoms coincide completely, whereas in the group of primary school teachers a partial coincidence is found (Fig. 5a,b). We can see that pronounced psychosomatic and psycho-vegetative disorders will be developing with the increase of years and teaching experience, and this is a regular process. But as for subject teachers, in our particular case, professional stress may worsen teachers’ general health status and lead to the faster development of emotional burnout syndrome, psychosomatic diseases and pathological disadaptation disorders.

In the course of the study of neuropsychic adaptation (NSA), it has been stated that teachers are diagnosed, at the average, with neuropsychic lability and evidence of stress: $27 \pm 2,8$; $28 \pm 1,7$; $22 \pm 2,9$ scores (in Groups 1–3, respectively). However, individual indices in survey Groups 1 and 2 varied from 2 to 60 scores, in Group 3 – 9–42 scores.

Correlation analysis of NPA and SEB index data is shown on pleiads (Fig. 5c). We can see a large number (11 и 12, respectively) of correlation relationships of NPA index to the three burnout phases and total score of burnout syndrome in teachers from Groups 1 and 2 ($p < 0,05$). In Group 3, there are only two correlation relationships viz. to exhaustion phase index and emotional deficiency symptom ($p < 0,05$). No correlation relationships between NPA and age and teaching experience are found out in all three groups of teachers.

Survey results showed that in all three groups of teachers with different activity profile, tension phase had not been developed. In this phase, the symptom of psychological traumatic experience begins to appear. In 29–44% of teachers from three groups this symptom had already been developed.

Resistance phase in three groups is at formation stage, and all 4 symptoms peculiar to this phase already begin to appear. Of these, the symptoms of inadequate emotional specific reaction and professional duties reduction are developed in 51–71 % of teachers from three groups. Exhaustion phase, at the average, is not developed; the symptoms peculiar to this phase are not formed. In this phase, the symptoms of emotional deficiency and psychosomatic and psycho-vegetative disorders are pronounced in 25 % of primary school and subject teachers. The latter is also present in 21 % of representatives of school authorities. Furthermore, they are distinguished by the lowest score of exhaustion phase. This reflects their greater psychological well-being as related to other groups of teachers. Emotional burnout syndrome is diagnosed in 14–15 % individuals from the survey groups; notably, in Group 3 the development of the syndrome is due to high scores of resistance phase symptoms.

The difference between the representatives of school authorities and compared groups of teachers lies in the fact that the former are not characterized by tension phase symptoms of dissatisfaction with oneself and feeling of “being trapped in a cage”, as well as exhaustion phase symptoms of emotional isolation and depersonalization. On the whole, both decrease in the total energy tone and weakening of the nervous system are not pronounced. However, they differ by the most pronounced symptoms of anxiety and depression, emotional and moral disorientation. In this context, one can say that they “experience state or personal anxiety, permit oneself to be rude or inconsiderate to their colleagues, allow self-justification of cynical, emotionless attitude towards professional duties” (Boyko, 2004).

Study of correlation relationships between age, teaching experience and emotional burnout symptoms proved their maximum in the group of subject teachers, less – in the group of primary school teachers, and a total absence – in the group of school authorities. Accordingly, one can assume considerably high emotional tension in subject teachers. As far as the group of school authorities is concerned, perhaps, other factors (viz. subjective, personal) are likely to play role in burnout development. The research by Demyanchuk (2015) also reflected occurrence of single, strong and reliable relationships between the symptoms of emotional burnout, age and teaching experiences of the pedagogues.

Our data have shown that, at the average, three survey groups of teachers are diagnosed with neuropsychic lability. We have found out a considerable number of positive correlation relationships of neuropsychic adaptation level with 3 burnout phases and a large number of burnout symptoms in teacher groups 1 and 2.

Lack of correlation relationships of NPA index to age and teaching experience may testify that psychic adaptation disorders are not always associated with the latter; the leading part is rather attributed to personality determinant (e.g., emotional lability) and, probably, working conditions (objective factors, e.g., drawbacks in organizing teaching activities), which is supported by the literary data (Mitina & Asmakovets, 2001; Cano-Garcia et al., 2005). Consequently, emotional burnout syndrome development in teachers takes place at the background of neuropsychic disorder, neuroticism and pathological psychic disadaptation development, which has been proved by other researchers (Kokkinos, 2007).

Conclusion

In summary, our study showed similar pattern of emotional burnout state in primary school and subject teachers, while the group of school authorities representatives had its own peculiar features.

However, in all three groups, resistance phase was the most pronounced. Teachers in their main have already developed individual ways of psychological defense against everyday stress at work.

Pronounced symptoms of emotional burnout may further depletion of psychoemotional resources, as well as affect adversely not only the professional performance but also lead to psychic adaptation disorder and neuroticism development.

Taking into account a considerable number of correlation relationships of NPA scale to emotional burnout indices, one can suggest that this scale should be used for express diagnostics of the risk of emotional burnout in teachers. The results of the study may be used both for working out psychohygienic arrangement and for prevention of emotional burnout among school teachers. Professional risk for teachers' health in the course of their working career needs further study.

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No conflict of interest

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Systematic review

Theoretical Approaches Towards the Study of Uncertainty Effects in the Process of Personality Development Meaning Regulation

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Abstract

Introduction. The article hopes to provide a theoretical analysis of research papers dedicated to the way various uncertainty effects influence personality development. The uncertainty phenomenon has to be considered due to the research field enhancement while elaborating adequate patterns of personality development meaning regulation.

Theoretical Basis. Uncertainty effects are revealed epistemically and ontologically in the objective sphere, and existentially and phenomenologically in the subjective sphere.

Results. Epistemically uncertainty effects are a changeable level of cognitive reflection; continuity of certainty and uncertainty; ambiguous, incomplete and insufficient information; lack of human knowledge about human abilities; disregard for casualties and anomalies; blurred and multiple current psychological paradigms. Ontologically uncertainty effects are relativity of existence; development points with equal probability; a chance of synergistic effect; different human abilities of achieving goals within their existence; aspiration to gain new personal experience; different susceptibility to development pathway deviations. Existentially uncertainty effects are the absence of well-defined external clues in search of life purpose; personality development crises; discrepancy in tolerance levels towards uncertainty; discrepancy in credibility levels towards the world; nonidentity of individuals' personal experiences; different ideas of action purposes; discrepancy in contradiction levels of interaction between an individual and the society; an unbalanced combination of rational and emotional perception; impossibility of permanent psychological comfort. Phenomenologically uncertainty effects are success and failure expectation risks; different motivation levels; "learned helplessness"; learning interferences due to implicit knowledge; lack of time for reflection over decisions; a subconscious phase of decision making; conscious and subconscious meaning attribution.

Discussion. An individual has to act under the influence of many uncertainty effects. Taking this into consideration allows a more full-fledged theoretical and empiric study of personality development processes.

Keywords

meaning, meaning sphere, meaning-building, personality development, certainty, uncertainty, epistemic approach, ontological approach, existential approach, phenomenological approach

Highlights

- ▶ Uncertainty is a new methodological principle used to study individuals as complex self-developing systems.
 - ▶ Uncertainty effects are objectively revealed epistemically and ontologically; they are subjectively revealed existentially and phenomenologically.
 - ▶ Personality development is subject to many uncertainty effects, demonstrating different tolerance levels.
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Introduction

Psychology is currently experiencing enhancement in the range of factors considered within studies of specific features typical of personality development meaning regulation. This outgrowth of the study field leads to more complex and variable personological patterns that are losing their unambiguity. The latter, within the framework of analysis and synthesis of scientific knowledge, means probabilistic nature of the cognitive process instead of strictly determined view of personality development as a whole and the genesis of meaning sphere in particular. An interest in studying uncertainty effects is connected to the necessity of taking into account various intrinsic subjective development factors – needs, motives, interests, and purposes of an individual's actions. They may not coincide with extrinsic objective conditions of activity situations of various nature.

Various dictionary entries give one of the following ideas of uncertainty as a psychological state of an individual, not really sure about something; in the information theory it is defined as a degree of freedom which has no limitations when it comes to multiple choices. Meanwhile in terms of economics a strategy is referred to as an action plan under uncertainty conditions. *The objective* of this article is to provide a theoretical review of contemporary works on how uncertainty influences personality development epistemically, ontologically, existentially, and phenomenologically, which allows to systematize available knowledge for fuller simulation of the concerned individual's meaning regulation. This helps to more fully reveal both objective and subjective interference with personality development, as well as search new opportunities to achieve the acme state.

Theoretical Basis

In the cognitive process, alongside empirical basis accumulation, growth in the number of events and phenomena that can't be described and predicted by the current scientific paradigm is unavoidable. As T. Kun points out, such uncertainty buildup in cognition means

a further scientific progress impossible, which inevitably causes revision and change of scientific views. Newly set-up principles, in case they're accepted by the scientific community, provoke change in the scientific paradigm (Kun, 2014). According to Kornilova (2018), uncertainty is considered a new methodological principle and key element of the science, that serves as a reference for psychological theories of thought, mind, and an individual's self-regulation.

Objective uncertainty is seen as givenness independent of human activities and growing together with the complexity of the world perceived (Smirnov, 2016). Subjective uncertainty is seen as psychosociocultural phenomenon, demonstrating how blurred the individual identity of modern man is, his loss of morals and the value of interpersonal relations (Sokolova, 2015). Undoubtedly, the boundaries between the objective and subjective spheres as well as their intrinsic gradation are relative and flexible to a certain extent. Thus let us consider uncertainty effects which extensively influence an individual's acmeological status as an integrated index of development:

1) in the objective sphere:

a) *epistemically* uncertainty influences cognitive ways of postnonclassical rationality (Diev, 2018) and is seen as ambiguity and lack of information (Panfilova, 2012);

b) *ontologically* uncertainty reveals the nature of existence of an individual and society, that, regardless of cognitive activities, reflects sophistication of their environment (Smirnov, 2016) as well as shows ways to overcome deterministic principles in order to disclose the nature of existence mystery as a key psychological category (Zinchenko, 2016);

2) in the subjective sphere:

c) *existentially* uncertainty shows lack or absence of purposes that could fill and guide individuals' lives. V. Frankl calls this state of frustration in the form of loss of life purposes an existential vacuum leading to specific mental deviations, i.e. noogenic neuroses (Frankl, 2017). This kind of existential interpretation of uncertainty impact on a modern individual's life shows the genesis of personal purposes and their hierarchy. This goes deeper as compared to the axiological approach dealing with the correlation of personal and social values as they are;

d) *phenomenologically* uncertainty highlights the way various psychic processes correlate within the inward world. This multidimensionality shows the way to transcending beyond obvious phenomena when purposes unite its existence and consciousness into a true value of a personality's life (Husserl, 2019).

Results

Based on the abovementioned points let us analyze the uncertainty effects influencing personality development discussed in the contemporary research.

Firstly, let us consider the *epistemic approach* in the study of uncertainty effects. The main epistemic scheme includes the subject possessing consciousness and willpower and the object of cognition. Then the main circle of epistemic range of problems includes the interpretation issues of objects of cognition, the cognitive process structure, problem of cognitive methods and choice of truth standards.

Considering the specific ways cognition is developed, V. S. Stepin suggests three types of scientific rationality: classical, nonclassical and postnonclassical, which differ by how deep

reflection is towards the conducted scientific research. Every type of scientific rationality that occurs doesn't eliminate the previous one but restricts its application area and discovers new spheres of scientific research (Stepin, 2018). For example, the researcher points out that uncertainty and probability of the nonclassical type are still used and taken into account while building up the postnonclassical scientific worldview. In that case let us consider the permanent and ever increasing level of human reflection in the cognitive activity as the *uncertainty effect*.

V. P. Zinchenko emphasizes that the main aim of newly created theories and explanatory principles was to overcome uncertainty of a human life. Based on that, the deterministic principle was considered on top of the cognitive tools of mankind, which helped reduce chaos and uncertainty towards order (Zinchenko, 2016). According to the researcher, it is the inseparable connection and change of certainty and uncertainty that serve the scientific and cultural development, which can be regarded as an *uncertainty effect*.

Panfilova (2012) points out that the period when science was dominated by the doctrine of determinism saw uncertainty used to indicate and describe lack of knowledge. Meanwhile most definitions of uncertainty have a negative prefix: unexpected, unknown, unpredictable. In this particular case *the uncertainty effect* is seen as ambiguous, incomplete and insufficient information.

The uncertainty of paradigm conceptions development in psychology is revealed by the fact that neither of the crises that occurred in psychology was finished fully according to Kun's scenario (Chesnokova, 2017). Instead a bunch of new psychological branches appeared, that didn't fully replace the paradigm that was previously dominating but only a little pushed it aside, and all of them still coexist in the scientific field of knowledge. In this case the *uncertainty effect* can be viewed as ambiguity and multiplicity of current psychological paradigms.

Poddyakov (2017) studies the development experience of objects that are involved in nontransitive (in similar properties) relations of superiority. When it is necessary to make a choice there are cycles in such binary relations as, for example, in the rock-paper-scissors game. This means that there is uncertainty in the choice of development scenarios for such systems. Then a problem arises: how does an individual learn about and engage natural complex systems surrounding them in their activity as well as create new ones? (Poddyakov, 2017). This is why it is possible to consider nonobviousness of decision-making within a complex system with nontransitive properties of alternative ways of development (in a nontransitive environment) as an *uncertainty effect*.

According to G. Grinder and R. Bendler, the creators of neurolinguistic programming (2017), the problem of human activity, providing positive changes in a life, is caused by ignorance of an individual's abilities. The acuteness of this problem can only be levelled through reinterpretation of current and, most importantly, potential possibilities which has been proved in the works on logotherapy (treatment of noogenic neuroses through search of life purpose) by Frankl (2017). Shchedrovitskii (2018) marks incomplete knowledge of policy makers' and executives' abilities as lack of information in organisational-activity games. In that case we should mark lack of individuals' knowledge of their abilities (current and potential) as an *uncertainty effect*.

N. Taleb looks at the nature of unexpected and abnormal events, called "black swans". The researcher points out the inability of mankind to successfully predict the future;

meanwhile confidence in one's sufficient knowledge is ahead of this process which gives rise to the phenomenon of "overconfidence" (Taleb, 2007). Hence the primary importance of what one doesn't know over what they know. In that case the *uncertainty effect* should be viewed as neglect of casualties and abnormalities happening in life, which can result in its unpredictable scenario.

Secondly, let us consider the *ontological approach* in the study of uncertainty effects. The existential aspect of human life is subject to uncertainty of the surrounding environment as non-completely regulated states and life-sustaining processes.

A. N. Chanyshv in his work "Treatise of Non-Being" points out the primary nature and absoluteness of non-being as well as secondariness and a relative nature of human existence in the universe. Development is seen as a build-up and intensification of being, and the more intense it is, the more subject to perishing like a fall into the ocean of the underlying non-being (Chanyshv, 2007). Therewith perception of non-being allays the fear of non-being. In this connection *the uncertainty effect* is seen as relativity of being and impossibility for an individual to permanently feel at their maximum.

I. Prigogine and G. Nicolis showed a new type of self-regulating systems called dissipative, which exchange a substance, energy, and information with the external environment. The idea of self-regulation is that a spontaneous transition from disorder (various degrees of chaos) to a better organized state, although it occurs alongside irreversible loss of energy (dissipation), but constructively contributes to this less chaotic state (Prigogine & Nicolis, 1989). Researchers prove that transitions of open unbalanced systems through choice points (bifurcations) are occasional and non-linear processes, possessing a degree of uncertainty and impossibility of giving them a strict deterministic description. Based on this, *the uncertainty effect* is revealed in a number of bifurcation points, demonstrating equal probability of development in several evolutionary branches of self-organizing systems.

The author of the synergistic effect idea G. Khaken enhances the concept of self-organizing systems development in terms of their transition to whole new states. Their acquisition of new opportunities is provided at bifurcation points under the condition of consolidated actions performed by all the system components (Khaken, 2015). It shows that a self-organizing system possess specific characteristics of order, reflecting its tendency to acquire a certain state – an attractor serving as a pole of relative stability. In this case *the uncertainty effect* consists in the fact that a self-organizing system, provided that all its constituent parts are operating coherently, produces a whole new (synergistic) opportunity that is beyond a simple sum of effects produced by the system parts.

Considering quality ways of human self-development V. F. Petrenko points out the importance of taking into account long-term purposes of an individual's behaviour. Due to various motivation and meaning versatile relationships and actions can be initiated. An understanding approach is needed that would give a new perspective of an individual's socialization through the range of personal opportunities thanks to their mysterious ability of free will (Petrenko, 2017). Given that, *the uncertainty effect* should be viewed as various human abilities in achieving the purposes of their being which can have a qualitatively different level like the range of potential opportunities of personality development.

Studying the mechanisms of human interaction with man-induced and natural environment, V. P. Alekseev puts forward a hypothesis of "dispersive selection". He supports all emerging

variations of human evolution, which presupposes multiple choice, showing uncertainty that triggers that choice (Alekseev, 2008). In this aspect A. G. Asmolov sticking to the historical and evolutionary approach states that a new state of self-developing systems emerges from uncertainty, not certainty. Implicitly uncertainty also lies in preadaptive behavior (Asmolov, 2016). Consequently *the uncertainty effect* can be viewed as a tendency of a self-developing system to transit to new states to enrich personal experience of being under changing conditions of the changing external environment.

Developing the approaches, alternative to the ideas of linear causativity in human actions, N. A. Bernstein underpinned the psychophysiological theory of a reflexive ring. Based on that, a negative feedback signals about deviations of what is actually happening from the desirable serving as a reaction to failure. Information about failures is essential for evolution since it provides data on errors and what should not be done (Bernstein, 2017). Discrepancy in the operation of elements may occur in self-developing systems, hence one doesn't always see a deviation from the chosen development purpose of personal potential due to the loss of sensitivity towards the feedback signals (Leontyev, 2016). In that case the uncertainty effect can be viewed as various sensitivity towards feedback signals indicating deviations from the development pathway.

Karpov (2016) suggests a metasystemic approach to study the problem of consciousness. Its idea resides in the necessity of consideration and methodological use of the statement that consciousness belongs to a special class of systems. Localization of the metasystem is considered an essential difference of this kind of non-classical system. The consciousness system doesn't only interact with the outlying objective reality via psychics as a metasystem, but also reflects that metasystem in its content. Then external localization of the metasystem is not the only possible option; internal localization of the consciousness system also takes place which becomes evident when the example of psychics is used. This "double being" due to the reflective attribute of psychics means that there is a subjective – internal – reality in one's consciousness (Karpov, 2016). Thus, consciousness as a system with an in-built metasystemic psychic level reveals itself by forming "being for itself" or, more specifically, "psychics for itself", which is seen as the only possible subjective form of psychic existence. The fact that a psychic metasystem is built in the consciousness system means that the former actually stops its subjective existence and gets transformed into the subconscious. The subjective subconscious cannot be perceived by an individual by definition, although psychics objectively forms this kind of functionally necessary mechanism of constituting consciousness (Karpov, 2016). An individual considers the subconscious to possess the opposite quality definition, consequently uncertainty is involved in the way consciousness operates by means of this subconscious generating mechanism. Then considering *the uncertainty effect* it should be noted that while the consciousness system is functioning, psychics is being built in, that generates its own being as the subjective subconscious, which is not felt by an individual, hence bringing uncertainty to the consciousness operation.

Thirdly, let us consider the *existential approach* to the studies of uncertainty effects. The most debatable area can be roughly outlined as the problems of finding a life purpose, which is unique to an individual and possesses a spiritual nature.

The founder of logotherapy V. Frankl points out that a personality's existential sphere is subject to noogenic neuroses due to the lack of meaning and inability to reveal it. A specific

feature of an individual's purpose of life is that one cannot obtain it from the outside, it is impossible to borrow it from anyone, or acquire it any other way from external sources (Frankl, 2017). Studying purposes of life in the uncertainty of the modern world, the developer of psychology of meaning D. A. Leontyev and his followers state that it is essential for a living individual to realize the purpose of life as living itself (Leontyev & Mospan, 2017). Then the *uncertainty effect* is seen as lack of clear guidelines in the external sphere of activity, that takes place in search of a personal life purpose, and a need for a personality's inner mental work find the purpose of life as their high calling.

It is common knowledge that personality development is accompanied by its inevitable transformations and crises. El'konin (2017), while elaborating his leading activity theory, notes that child's and teenager's socialization entails periodical alternation of the leading type of their activity manifested as crises, which is due to different rates of development within the two relational systems: "child – adult" and child – object". E. Ericson also examines personality becoming from the standpoint of crises progression; in his epigenetic theory this author is considering step-by-step development of psychological abilities. Stages change in crises, which reflects successfulness or unsuccessfulness in the development of the required personality properties in the form of a normal or abnormal new structure (Ericson, 2018). Then, as *the uncertainty effect*, one may state that uncertainty is introduced in human life by one's own development's crises which reflect the necessity in a timely quality restructuring of relations within the inner and outer world with the aim of full socialization.

One of the key categories producing existential influence on experiencing current developments, is tolerance to uncertainty, which was first proposed by E. Frenkel-Brunswik. While analyzing the existing approaches, I. N. Leonov notes that this scientific construct is in basic terms a many-valued ability to perceive and overcome uncertainty as ambivalence in the development of various life situations. "Tolerance – intolerance to uncertainty" characterizes the peculiarities of the perceptive and cognitive processes of the interacting person (Leonov, 2018). That is why existence of tolerance to uncertainty serves as a prerequisite to adaptational readiness within the "personality – environment" system (Grigoryeva, 2018). Due to a large variety of those positions taken by people towards the changes occurring in their lives, one may identify, as the *uncertainty effect*, various levels of tolerance to uncertainty among the people who contact in common situational interactions, which may lead to incoherence, different outcome expectations, abandon of the psychological comfort zone.

While examining the psychological experience, Vasilyuk (2016) notes that resolution of conflicts and crises determined by the changeable outer world, is promoted by the obligatory availability of a person's complex inner world. Further psychic evolution promotes formation of a definite degree of confidence in the world, which feeling appears through the experience of creative actions. Abundant confidence in the outer world permits to overcome those crises reflecting the internal need in the implementation of vital intensions (Vasilyuk, 2016). Based on this, one may view the *uncertainty effect* as various degrees of confidence in the world, which reflects the level of development of the personal inner world and permits, although to different successfulness degrees, to overcome crises situations.

Works by I. V. Abakumova and her followers show that the system of meanings of all kinds of activities in the human life is the substrate where crystallized are those vital meanings that determine the personality development general locus. This process is catalyzed

by the personality experience as an individual unique way of comprehension of the events (Abakumova & Kruteleva, 2014). Meanwhile the *uncertainty effect* may be viewed as nonidentity of personality experience in different people influencing the maintenance of their vital-meaning strategies.

K. V. Karpinskii, while studying vital-meaning crises, points out availability of a non-ideal life strategy as one of the reasons of their appearance and aggravation. Determinative for its ideal construction is the ability to consistently combine and integrate the accessible activities, each of a poly-motivated character (Karpinskii, 2017). Then the *uncertainty effect* will be reflected in different degrees of inconsistency in combining the accessible activities in the human life, which leads to a non-ideal life strategy.

V. S. Diev, while studying real decision making practices in presence of risk, notes the importance of considering irrational human behavior in such situations. This is determined by a unique set of personality meanings and values dictating his individual reactions, and this often does not coincide with the ideal variant (Diev, 2018). To overcome the arising uncertainty, as stated by this researcher, decision making should become a conscious choice based on rationality. In this case the *uncertainty effect* is the absence or incomplete knowledge of the meanings of situational activities.

Abul'khanova (2017) in her studies of the lifetime use shows the possibility of consideration of the peculiarities in the time arrangement with the aim of overcoming the arising contradictions with the living conditions in a definite society. Hence the *uncertainty effect* may be viewed as a different level of contradictions in the relations between man and society arising due to the choice of various ways of personality lifespan actualization.

The Post-Modern discussion of truth as an ideal socio-humanitarian knowledge inevitably results in a set of issues on the relation to objective facts at which people may be based on a rational or emotional perception. The state at which man makes his choice whether to consider this or that message true or false, was named "post-truth". Transition to the post-truth state allows fake news in the virtual reality (Fuller, 2018). This, when it comes to search for truth, means a dichotomy of confidence between reason and public opinion and definitely promotes a situation in which man may make a choice not by his reason only, but trusting his meanings and making a choice "by his heart". Then the *uncertainty effect* becomes an unbalanced combination of rational and emotional perception in shaping attitudes to the events and in the choice in a state of post-truth.

Sokolova (2015) attaches to uncertainty as a socio-cultural phenomenon, properties of diffused individual identity, devalued interpersonal relationships and unbelief in the latter, moral relativism. This researcher points out three criteria in describing vexatious experience in subjective uncertainty: the specifics of the projected alert content, the way of psychological defense, the state of experienced self-identity. Then the *uncertainty effect* is the impossibility of a permanent state of complete psychological comfort and, in view of this, a different alert level.

Fourthly, let us now consider the *phenomenological approach* to the study of uncertainty effects. Under the uncertainty effect man has to adapt his inner world and enrich his own experience in order to develop adequate perception of and behavior under the rapidly changing conditions of the world around.

J. Atkinson in his labor theory of motivating achievements employs the idea of the claim level influence. Motivation of activities and their quality stem from man's strive to success

and failure avoidance (Atkinson & McClelland, 2018). In choice situations when the result is previously unclear, we face a conflict between strive to success and unwillingness of failure. In an "expectations game" of the kind those who strive to success cope better with the tasks at hand and willingly set forth new goals (Atkinson & McClelland, 2018). Then the *uncertainty effect* in choice situations is the expectations risk, i.e. a simultaneous possibility of both success and failure, which influences the level of motivation in achieving the activity result.

B. Weiner in his study of achievement motivation mechanisms revealed that the future expectations of their results are defined by man's quality ideas, i.e. what he thinks of the reasons of either success or failure. This researcher showed that in case of high-level motivation man links success to abilities and adequate effort, while failure is referred to insufficient effort. At the same time, in case of low motivation man ascribes success to the task difficulty (its easiness) or luck, and in case of failure he sees the reason in the abilities deficiency (Weiner, 2018). Then the *uncertainty effect* may be the level of motivation of the person or discordance in the motivation level within the group.

M. Seligman showed that the experience of long failure, negative life events may turn into a safe prognostic indicator of man's reduced expectations of his future successfulness which the researcher named "a state of trained helplessness". This is characterized by the appearance of three new types of deficit: inability to act in terms of initiating adequate responses; inability to learn; emotional disorders like depression (Seligman, 2018). Hence the *uncertainty effect* should be viewed as absence or presence of "trained helplessness" resulting from various experiences of getting into uncontrolled situations or negative life events.

The research supervised by A. Yu. Agafonov aimed at the study of digestion of semantic invariants in the solution of letter anagrams, shows the difference in the negative choice time during the attempts of their solution. This is a consequence of implicit acquisition as a receipt of an unconscious prompt (Agafonov, Kryukova, & Deeva, 2018). Then, in situations of the uncertainty of choice, irrelevant implicit (unconscious, meaning-contained) knowledge may slow up rapidness and successfulness in problem solution. That is why the *uncertainty effect* should be viewed as disturbances in learning stipulated by presence of unconscious implicit knowledge.

The time shortage impact is noted in the papers by K. A. Abul'khanova where the author, based on the studies of human labor on a conveyor and the analysis of the incident graph, states that one may easily see their dependence on the human inability to cope with the incident in case of time shortage (human factor effect; see Abul'khanova, 2017). Then the *uncertainty effect* may be viewed as shortage of time required for consideration and decision making.

A. M. Ivanitskii, in the course of his long psycho-physiological studies of cerebration, notes that this process includes a subconscious decision making phase. This choice is not strictly determined by mental activity, hence it cannot make the basis of the freedom of will since it touches on the subjective *I* and is rested upon the inner speech mechanisms (Ivanitskii, 2017). Then the *uncertainty effect* should be viewed as the unconscious decision making phase in the mental experience acts.

As stated by V. M. Allakhverdov, meaning attribution occurs as a result of action of both conscious and unconscious mind mechanisms. The meaning attributed by mind is a positive

and, at the same time, negative choice with a tendency to aftereffect (Allakhverdov, 2016). Further information is processed by mind with consideration to the previously preserved meanings as cognitive choice mechanisms. That is why *the uncertainty effect* should be viewed as follows: meaning attribution occurs under the influence of both conscious and unconscious mind mechanisms which may shape a number of meanings of the information perceived.

Discussion

From the standpoint of meaning regulation and polyvariety of personality development, uncertainty effects have been revealed gnosiologically and ontologically in the objective sphere, as well as existentially and phenomenologically in the subjective sphere. A systematization of the kind shown in this review might seem somewhat relative, yet it reflects in general the versatility of action of the uncertainty factors. Their semantic charge on the life regulation processes is of various natures and directions. This gnoseologically manifests itself as hampered systemic comprehension of the perceived objects, insufficient structuredness of comprehension processes, difficulties in the choice of adequate cognition methods and great variability of truth criteria; ontologically it is various stages in the disarray of the outer world states and processes with the impossibility of their complete comprehension; existentially it is instability or lack of life meanings, which in the absence of inner spiritual work nullifies the meaning of life and leads to the bloom of noogenic neurotic and depressive disorders; phenomenologically it is inadequacy of perception of one's inner world and experience, which leads to the impossibility to perform proportioned reactions in the form of measured attitudes and evaluations in interactions under rapidly changing circumstances of the outer world. The above aspects of uncertainty manifestation influence the personality acmeological status as an integral picture of its self-development. Therefore man is to act under the influence of many factors of uncertainty, showing various levels of tolerance to uncertainty. Thus man *a priori* has to interact under a permanent impact of a large number of uncertainty effects. Consideration of uncertainty effects permits to model more qualitatively the processes of meaning regulation, personality development strategies, as well as to work out adequate empirical approaches to their study.

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Characteristics of Women's Identities in Crisis and Inter-crisis Age Periods

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Abstract

Introduction. This paper examines the characteristics of identities in women of various ages and ethnic groups in crisis and inter-crisis age periods. The novelty of the research lies in studying the identities of women of Russian, Buryat, and mixed ethnic groups in crisis periods regardless of their age.

Methods. The study used the following techniques: (a) the Twenty Statements Test developed by M. Kuhn and T. MacPartland, (b) the Life Line technique developed by A. Kronik, and (c) the SEI test developed by E. L. Soldatova.

Results. Regardless of the periodization of crisis and inter-crisis periods in adulthood, the level of achieved identity is higher in the crisis periods. Meanwhile, the level of diffused identity is higher in the inter-crisis periods. Differences in identity statuses are mainly inherent to women of Russian ethnic group. The SEI test results showed no significant differences in women identifying themselves with Buryat ethnic group or those of the mixed ethnic group. Certain age periods are characterized by greatest differences in identity statuses. Differences in the achieved identity statuses refer to the period between the 35th and 46th year of age. Women older than 46 years of age demonstrate differences in the diffused identity statuses. During inter-crisis periods, women represent a great number of events that may happen to them in the future, as well as in the period of life that they subjectively refer to the future. During crisis periods, women with the status of achieved identity are characterized by a more detailed representation of their future. During crisis periods, women of Russian ethnic group plan their future in terms of their unique identities. Women of Buryat ethnic group plan their future being guided by social roles attributed to them.

Discussion. The empirical results obtained in this study are compared to those from previous studies in this field. The differences in the results are analyzed in terms of differences in the study samples, cultural aspects, and approaches to studying identity development.

Keywords

identity, middle age, crisis of identity, dynamics of identity, status of identity, ethnic group, crisis period, inter-crisis period

Highlights

- ▶ In crisis and inter-crisis age periods, mature women are characterized by different statuses of identity. During crisis periods, the achieved identity status increases; the diffused identity status decreases.
- ▶ During inter-crisis periods, women are characterized by a more detailed subjective representation of their lives, including a great number of events that may happen to them in the future, as well as in the period of life that they subjectively refer to the future. However, women with the predominance of the achieved identity status provide a more detailed representation of their future during crisis periods.
- ▶ In crisis and inter-crisis periods women's statuses of identity differ depending on their ethnicity. During crisis periods, women of Russian ethnic group plan their future in terms of their unique identities. Women of Buryat ethnic group plan their future being guided by social roles attributed to them.

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Introduction

The focus of recent psychological research has been on studying identity and its crises. However, previous researches usually either concentrate on early stages in identity development: primary school age (Korotaeva, 2011; Bogdanova, 2000; Garmaeva, 2010; Miklyaeva & Rumyantseva, 2008; etc.), adolescence, and youth (Kalinina & Kholmogorova, 2007; Ivanova & Mazilova, 2008; etc.) or compare them with each other (Kuzmin, 2015, 2016). The development of identity status is well examined in adolescence (De Goede, Branje, & Meeus, 2009; Crocetti, Fermani, Pojaghi, & Meeus, 2011; Meeus, van de Schoot, Keijsers, Schwartz, & Branje, 2010). Much less attention is paid to identities in subsequent age periods. This is partly explained by the fact that when growing up the crisis age periods appear to be the most definite (for example, crises at the age of 7, 13, and 17 years in the periodization of L. S. Vygotsky (Levchenko, 2016). Further periodization of human development, as it follows, for example, from Erickson works (1996), does not have similar unambiguous frameworks.

Several publications have appeared in recent years dealing with the issue of identity development in more mature age periods. At the same time, no studies of identities in crisis periods were done. Most researchers (Fadjukoff, Pulkkinen, & Kokko, 2016; Carlsson, Wängqvist, & Frisén, 2015; Kroger, Martinussen, & Marcia, 2010) have shown that the level of achieved identity increases, while the level of diffuse identity decreases in both men and women with growing age. However, no studies examine the differences between identities in crisis and inter-crisis periods. This is partly explained by the diversity of approaches to the periodization of maturity in terms of crisis and inter-crisis periods. Soldatova (2007) generalized

various approaches to periodization (Stepanova (2000), Gansen & Golovey (Gansen, 2001), Morgun & Tkachev, Bratus (in Manukyan, 2002), etc.) and focused on the crises of adulthood, which could be watersheds separating different stages of life from each other. Thus, E. I. Stepanova considers the periods of 25–26 and 35–36 years of age as such crisis stages in adulthood. V. A. Gansen & L. A. Golovey distinguished the following crisis periods: 19–21, 25–27, 32–35, 40, and 50–65 years of age. According to V. F. Morgun & N. Yu. Tkacheva, the periods of crisis correspond to 18–23, 30, 40, and 50–55 years of age. According to B. S. Bratus, the crisis periods of life are most often associated with 28–34, 40–45, and 50–55 years of age.

In general, we can conclude that these classifications, on the one hand, extremely widen the scope of the crisis (for example, for 15 years of age, according to the classification of V. A. Gansen & L. A. Golovey), and, on the other hand, do not completely coincide with each other. An empirical study may help to optimally differentiate different life periods from each other and, accordingly, to identify specific characteristics of identities.

The present study aimed to analyze the characteristics of identity depending on the stage of its development (crisis and inter-crisis periods). Crisis periods between certain age stages are characterized by their specific characteristics. We attempted to distinguish features of identities in the crisis and inter-crisis periods. To exclude the influence of additional variables, our sample contained only women aged 18–74 years. The development of women's identity has its own specific characteristics, which have been widely investigated in psychology (Caffarella & Olson, 1993; Josselson, 1996). Accordingly, this may be taken into account when analyzing the data obtained.

Methods

A sample of 477 women of different ethnic groups aged 18–74 years took part in this study. The respondents were female students from Irkutsk State University Institute of Philology, Foreign Languages and Media Communications and also those who underwent their annual medical preventive examination in the Bokhan District Hospital, Bokhan village. We surveyed the respondents to collect information about their ethnicity and the ethnicity of their parents as well. By the results we differentiated them into several ethnic groups.

Our study used the following techniques: (a) the Structure of Ego-identity test (SEI test) developed by E. L. Soldatova (Soldatova, 2007), (b) the Life Line technique developed by A. Kronik, in its blank version (Leaders, 2008), and (c) the Twenty Statements Test developed by M. Kuhn and T. MacPartland (Kuhn & McPartland, 1954) with the authors' method for processing (Kuzmin, 2018). The data were processed using the Student t-test and Mann–Whitney U test (with normalized z-values), as the analysis of variance (ANOVA), and the Kruskal–Wallace H test. Correlation analysis was carried out using the Pearson correlation coefficient. The calculations were carried by means of the SPSS 23.0 program.

Results

Table 1 shows the differentiation of respondents according to the crisis and inter-crisis periods of development.

Table 1

Differentiation of the study sample according to the crisis and inter-crisis periods

		<u>Periodization</u>	<u>Ethnicity</u>			Total
			Russian	Buryat	Mixed	
Classification of Stepanova	Crisis periods	N	88	40	13	141
		%	18,4 %	8,4 %	2,7 %	29,6 %
	Inter-crisis periods	N	194	101	41	336
		%	40,7 %	21,2 %	8,6 %	70,4 %
Classification of Gansen & Golovei	Crisis periods	N	122	87	23	232
		%	26,8 %	19,1 %	5,1 %	51,0 %
	Inter-crisis periods	N	161	42	20	223
		%	35,4 %	9,2 %	4,4 %	49,0 %
Classification of Morgun & Tkacheva	Crisis periods	N	101	30	11	142
		%	21,2 %	6,3 %	2,3 %	29,8 %
	Inter-crisis periods	N	181	111	43	335
		%	37,9 %	23,3 %	9,0 %	70,2 %
Classification of Bratus	Crisis periods	N	114	64	27	205
		%	23,9 %	13,4 %	5,7 %	43,0 %
	Inter-crisis periods	N	168	77	27	272
		%	35,2 %	16,1 %	5,7 %	57,0 %

From the results in Table 1 it follows that the majority of respondents involved in the study were girls and women who identified themselves with Russian ethnic group; 30.4 % of respondents identified themselves with Buryat ethnic group; 10.5 % of girls and women reported themselves to be of mixed origin. At the same time, depending on the classification, the total number of respondents in the crisis and inter-crisis periods could change.

At the first stage, we studied the differences in the identities of women and girls using the SEI test developed by E. L. Soldatova. As the Kolmogorov-Smirnov D-statistics turned out to be insignificant for the scales of this technique, we used the Student t test when comparing the obtained data.

Table 2
Differences in women's identity statuses in the crisis and inter-crisis periods

Scales	Status	Classification of Stepanova		Classification of Gansen & Golovei		Classification of Morgun & Tkacheva		Classification of Bratus	
		t-test	p-level	t-test	p-level	t-test	p-level	t-test	p-level
Basic	Achieved	2,21	0,03	1,34	0,18	3,87	0,00	-0,68	0,50
	Diffused	-2,62	0,01	-1,21	0,23	-2,26	0,02	0,16	0,88
	Predetermined	-0,44	0,66	0,27	0,79	-2,05	0,04	1,22	0,22
Responsibility for a choice	Achieved	3,37	0,00	0,56	0,58	4,06	0,00	-0,51	0,61
	Diffused	-2,12	0,03	-0,39	0,70	-2,18	0,03	0,03	0,98
	Predetermined	-3,10	0,00	0,05	0,96	-3,19	0,00	1,16	0,25
Ego power	Achieved	1,14	0,26	-0,15	0,88	1,61	0,11	-0,85	0,40
	Diffused	-2,59	0,01	-0,58	0,57	-2,36	0,02	1,14	0,26
	Predetermined	1,13	0,26	1,11	0,27	1,03	0,30	-0,08	0,94
Life course awareness	Achieved	0,68	0,50	2,12	0,03	2,27	0,02	-1,74	0,08
	Diffused	0,63	0,53	-2,91	0,00	-0,67	0,50	-0,38	0,70
	Predetermined	-1,82	0,07	0,85	0,40	-1,68	0,09	2,54	0,01
Emotional maturity	Achieved	1,14	0,25	0,47	0,64	0,91	0,37	-0,82	0,41
	Diffused	-1,35	0,18	-0,96	0,34	-0,62	0,54	1,63	0,10
	Predetermined	-0,41	0,68	0,77	0,44	-0,24	0,81	-0,56	0,58

Table 2

Differences in women's identity statuses in the crisis and inter-crisis periods

Scales	Status	Classification of Stepanova		Classification of Gansen & Golovei		Classification of Morgun & Tkacheva		Classification of Bratus	
		t-test	p-level	t-test	p-level	t-test	p-level	t-test	p-level
Acceptance of the present	Achieved	1,04	0,30	2,17	0,03	1,10	0,27	-0,59	0,56
	Diffused	-2,86	0,00	0,34	0,73	-0,89	0,37	0,36	0,72
	Predetermined	1,72	0,09	-3,34	0,00	-0,30	0,76	0,57	0,57
Awareness of personal values	Achieved	0,93	0,35	-0,87	0,38	4,82	0,00	1,55	0,12
	Diffused	-1,61	0,11	0,67	0,50	-3,79	0,00	-2,63	0,01
	Predetermined	0,14	0,89	0,47	0,64	-1,42	0,16	0,89	0,38
Conformity to self	Achieved	-0,31	0,76	1,74	0,08	0,99	0,32	0,55	0,58
	Diffused	-1,92	0,05	-0,29	0,77	0,65	0,51	0,31	0,76
	Predetermined	2,30	0,02	-1,49	0,14	-1,84	0,07	-0,83	0,41

From the results in Table 2 it follows that according to the classification of E. I. Stepanova, women in crisis and inter-crisis age periods differ in their achieved ($t = 2.21$, $p < 0.03$) and diffused ($t = -2.62$, $p < 0.01$) identities. The main differences were associated with the following subscales: 'responsibility for choice – achieved' identity ($t = 3.37$, $p < 0.01$); 'responsibility for a choice – diffused identity' ($t = -2.12$, $p < 0.03$), 'responsibility for a choice – predetermined identity' ($t = -3.1$, $p < 0.01$), 'diffused identity – conformity to self' ($t = -1.92$, $p < 0.05$), 'acceptance of the present' ($t = -2.86$, $p < 0.01$), and 'ego power' ($t = -2.59$, $p < 0.01$).

According to the classification of V. A. Ganzen & L. A. Golovei, no differences were found in women in the crisis and inter-crisis periods by the main scales of the SEI test. They were associated only with the following scales: 'life course awareness – achieved identity' ($t = 2.12$,

$p < 0.03$), 'life course awareness – diffused identity' ($t = -2.91$, $p < 0.01$), and 'acceptance of the present – achieved identity' ($t = 2.17$, $p < 0.03$).

According to the classification of V. F. Morgun & N. Yu. Tkacheva, women in the crisis and inter-crisis age periods differ in their achieved ($t = 3.87$, $p < 0.01$), diffused ($t = -2.26$, $p < 0.02$) and predetermined ($t = -2.05$, $p < 0.04$) identities. The differences are associated with all the subscales related to the following scales: 'responsibility for choice' ($t = 4.06$, $t = -2.18$, $t = -3.19$, respectively, $p < 0.01$) and 'awareness of personal values' ($t = 4.82$, $t = -3.79$ for the achieved and diffused identities, respectively, $p < 0.01$).

Finally, according to the classification of B. S. Bratus, no differences were found in women in the crisis and inter-crisis periods by the main scales of the SEI test. There were only differences in certain components of the following subscales: 'awareness of personal values – diffused identity' ($t = -2.63$, $p < 0.01$), 'life course awareness – predetermined identity' ($t = 2.54$, $p < 0, 01$).

In general, we can conclude that depending on the classifications women in the crisis and inter-crisis age periods demonstrate differences in both subscales and main scales. Nevertheless, if we compare the statuses of identity during the crisis and inter-crisis age periods, it is obvious that regardless various classifications the crisis period is characterized by a high level of the achieved identity status and a low level of the diffused identity status.

We differentiated the female respondents according their ethnicity and obtained the following results. During the crisis and inter-crisis age periods women of Russian ethnic group demonstrated the greatest differences by the SEI test scales. These differences were mainly associated with the diffused identity status ($t = 2.1$, $p < 0, 01$ for classifications E. I. Stepanova, and V. F. Morgun & N. Yu. Tkacheva) and the achieved identity status ($t = 3.4$, $p < 0.01$ for the classification of V. F. Morgun & N. Yu. Tkacheva). Women of Buryat ethnic group or those of mixed ethnicity had no significant differences by the main scales of the SEI test.

Thus, we can formulate the following conclusions: (a) There is no classification that helps to unambiguously characterize the identities of women in the crisis and inter-crisis age periods. (b) Depending on the classification, differences will be associated with different identity statuses. (c) At the same time, the status of achieved identity is more pronounced in women during the crisis period; the status of diffused identity is less pronounced. (d) Moreover, this feature is more characteristic of women of reproductive age (before 46 years of age) (Nadelyaeva & Suturina, 2018) belonging to Russian ethnic group.

We also made an attempt to identify the age period that determines the greatest differences in women's identities in the crisis and inter-crisis age periods. The classification of E. I. Stepanova was the only valid classification. According to the results of the analysis of variance (ANOVA), the main differences in the level of women's achieved identity take place between 35 and 46 years of age ($F = 2.41$, $p < 0, 01$); the main differences in the level of women's diffused identity start manifest themselves after 46 years of age ($F = 2.43$, $p < 0.01$). Moreover, these differences are inherent in women of Russian ethnic group.

At the second stage, using the Life Line technique we studied differences in the subjective views of the life course in women in the crisis and inter-crisis age periods.

Table 3

Subjective views of the life course in women in the crisis and inter-crisis periods

Classifications			Total number of events	Representation of the past	Representation of events of the past	Representation of the future	Representation of events of the future	End of the event period
Classification of Stepanova	Inter-crisis periods	Md	7	7,5	4	7	2	55
		Qr (25,75)	6	2,975	3	5	3	19
	Crisis periods	Md	8	5	4	6,8	4	40,5
		Qr (25,75)	6	4,05	4	6	4	18,5
Classification of Gansen & Golovei	Inter-crisis periods	Md	7	6,5	4	7,2	3	45
		Qr (25,75)	6	3,4	3	5	3	21
	Crisis periods	Md	7	8	5	6,5	2	56
		Qr (25,75)	6	3,175	4	5,175	4	13
Classification of Morgun & Tkacheva	Inter-crisis periods	Md	6	7,4	4	7	2	50
		Qr (25,75)	5	3,125	3	4,85	3	20,5
	Crisis periods	Md	9	6,8	4	6	4	52
		Qr (25,75)	5	4,675	4	4,85	3	25
Classification of Bratus	Inter-crisis periods	Md	7	7,2	4	6	2	50
		Qr (25,75)	5	4,1	3	5,2	3	23
	Crisis periods	Md	7	7,3	4	7,5	3	52
		Qr (25,75)	6	2,8	3	5	3	16,5

According to the classification of E. I. Stepanova (by the Mann–Whitney U test), both reproductive-age women (before 46 years of age) and those of post-reproductive age (after 46 years of age) have significant differences in their subjective importance of the past ($Z = 7, 6, p < 0.01$), the number of events represented in the future ($Z = 4, p < 0.01$), as well as the end of the event period ($Z = 4.3, p < 0.01$).

Moreover, according to this classification, during the inter-crisis periods female respondents are characterized by a more distant end of the event period, and also indicate more events that may happen to them in the future. However, according to the median, such women indicate more events in their past.

According to the classification of V. A. Gansen & L. A. Golovey, there are differences in subjective importance of the past ($Z = 7.1, p < 0.01$), the number of represented events in the future ($Z = 3.1, p < 0.01$) and in the past ($Z = 3.2, p < 0.01$), as well as the end of the event period ($Z = 2.9, p < 0.01$). In this case, on the contrary, during the crisis age periods women report a more distant end of the event period.

According to the classification of V. F. Morgun & N. Yu. Tkacheva, during the inter-crisis and crisis periods women differ in the total number of specified events ($Z = 4.2, p < 0.01$), the subjective importance of the past ($Z = 4, p < 0.01$), the number of events represented in the future ($Z = 2.8, p < 0.01$), and the end of the event period ($Z = 2.1, p < 0.03$).

Finally, using the classification of B. S. Bratus, we did not find significant differences between these periods.

In general, regardless of the classifications women in the inter-crisis period represent a greater number of events that will happen to them in the future, as well as their period of life subjectively related to the future. The classification of B. S. Bratus is the only exception here. Moreover, we cannot unequivocally assert that the end of the event period of life somehow depends on whether the respondent is in a crisis age period. It depends on the approach to periodization that we use.

An interesting dynamics is also associated with the end of the event period – the age after which the subjects ceased to specify any important events in the future. In early adulthood the end of the event period corresponds to 30 years of age. In the first half of middle adulthood this period constitutes 35-years period and corresponds to its end. In the second half of middle adulthood this period is shorter than the period of previous life. Consequently, starting from the second half of middle adulthood women 'experience' themselves, leaving the event period of their lives in the past.

An additional analysis showed that the revealed differences are mainly inherent in women who identify themselves with Russian ethnic group. They have significant differences in the total number of represented events ($H = 19.9, p < 0.01$), the subjective significance of the past ($H = 48.8, p < 0.01$), the number of represented events in the future ($H = 17.6, p < 0.01$) and its subjective significance ($H = 27.5, p < 0.01$), as well as the end of the event period ($H = 29.2, p < 0, 01$). On the contrary, Buryat women demonstrate differences only in the subjective importance of the past ($H = 8.1, p < 0.05$) and the end of the event period ($H = 6.1, p < 0.05$). We found no differences in female respondents of mixed ethnicity.

We also carried out a correlation analysis of the statuses of identity and representations of lives in women in the crisis and inter-crisis periods. As follows from the correlation analysis, there are certain associations between the scales of the SEI test and the characteristics of the representations of life by female respondents in the inter-crisis period. These associations vary from classification

to classification. The subjects' representations of past events have strong negative associations with the status of diffused identity and positive ones with the status of achieved identity.

Table 4

Associations between the subjective image of the life course and identity statuses in women in crisis and inter-crisis age periods

<u>Classifications</u>	<u>Scales</u>	<u>Total number of events</u>	<u>Representation of the past</u>	<u>Representation of events of the past</u>	<u>Representation of the future</u>	<u>Representation of events of the future</u>	<u>End of the event period</u>
Inter-crisis periods							
Classification of Stepanova	Achieved identity	,139*	,055	,140*	,037	,101	,021
	Diffused identity	–,051	,008	–,058	–,022	–,033	–,101
	Predetermined identity	–,231**	–,092	–,122*	–,023	–,100	,118
Classification of Gansen & Golovei	Achieved identity	,076	–,014	,108	–,024	,181**	,017
	Diffused identity	–,113	,046	–,063	,014	–,127	–,145
	Predetermined identity	–,205**	–,048	–,075	,017	–,091	,176
Classification of Morgun & Tkacheva	Achieved identity	,086	,111	,167**	–,031	,060	,073
	Diffused identity	–,054	–,026	–,132*	–,007	–,143*	–,196*
	Predetermined identity	–,060	–,124*	–,061	,055	–,036	,153
Classification of Bratus	Achieved identity	,169*	–,013	,206**	–,067	,095	,011
	Diffused identity	–,015	,017	–,164*	,045	–,063	–,097
	Predetermined identity	–,184*	–,005	–,066	,035	–,051	,120

Table 4

Associations between the subjective image of the life course and identity statuses in women in crisis and inter-crisis age periods

<u>Classifications</u>	<u>Scales</u>	<u>Total number of events</u>	<u>Representation of the past</u>	<u>Representation of events of the past</u>	<u>Representation of the future</u>	<u>Representation of events of the future</u>	<u>End of the event period</u>
Crisis periods							
Classification of Stepanova	Achieved identity	,329**	–,158	,200**	–,088	,265**	,061
	Diffused identity	–,281**	,091	–,202**	–,070	–,213*	–,143
	Predetermined identity	–,087	,106	–,009	,235*	–,090	,085
Classification of Gansen & Golovei	Achieved identity	,289**	,012	,195*	,038	,315**	,064
	Diffused identity	–,297**	,041	–,107	–,091	–,252**	–,085
	Predetermined identity	–,131	–,070	–,124	,069	–,088	,022
Classification of Morgun & Tkacheva	Achieved identity	,206**	–,166	,184*	,188*	,239**	–,057
	Diffused identity	,020	,132	,011	–,133	–,187*	,082
	Predetermined identity	–,097	,039	–,179*	–,070	–,120	–,045
Classification of Bratus	Achieved identity	,194*	,029	,092	,101	,183*	,070
	Diffused identity	–,171*	,084	,001	–,127	,015	–,102
	Predetermined identity	–,050	–,156*	–,133	,028	–,138	,036

On the contrary, regardless of the classification in a crisis situation, we observe close associations between the total number of represented events and the status of achieved and diffused identity (positive and negative, respectively, with a significance level of $p < 0.01$). Moreover, they are mostly associated with the women's representations of the events of their future. It turns out that in a crisis period, the pronounced status of achieved identity positively correlates with women's representations of their future. On the contrary, the pronounced status of diffused identity negatively correlates with women's representations of their future. In the inter-crisis period, such a tendency is not observed.

The associations between the scales of the SEI test and Russian women's representations of their lives did not differ from those obtained in the entire sample. At the same time, we found certain specific associations in Buryat women. It turned out that during the crisis period Buryat women are mostly characterized by positive associations between the representations of their future and the status of predetermined identity ($r = 0.39$, $p < 0.01$). In addition, there is a relationship between the end of the event period and the status of predetermined identity ($r = 0.33$, $p < 0.01$). Thus, a more detailed representation of the future in Russian women is associated with their statuses of achieved identity. A more detailed representation of the future in Buryat women is associated with their statuses of predetermined identity. In other words, during the crisis period women of Russian ethnic group plan their future in terms of their unique identities. Buryat women plan their future being guided by social roles attributed to them.

Finally, at the third stage, we examined the distribution of answers to the items of the Twenty Statements technique among women in the crisis and inter-crisis age periods. However, we did not find any unambiguous differences in any components in all the classifications (E. I. Stepanova, V. A. Gansen & L. A. Golovei, V. F. Morgun & N. Yu. Tkacheva, and B. S. Bratus). For example, according to the classification of E. I. Stepanova, female respondents in the crisis period demonstrate a more pronounced family component of identity ($z = 2.8$, $p < 0.01$). However, the results obtained are not confirmed in any other classification. On the other hand, according to the classification of B. S. Bratus, in the crisis period, women have a more pronounced personality component of identity ($z = 2.05$, $p < 0.05$). However, this difference is not confirmed by other classifications.

Discussion

We found that depending on the classifications, women in crisis and inter-crisis periods are characterized by specific differences in their identities. However, regardless of the classification, in the crisis period the level of achieved identity is higher; the level of diffused identity is lower. Moreover, this tendency is characteristic of two of the four classifications considered – namely, the classifications of E. I. Stepanova, V. F. Morgun, & N. Yu. Tkacheva.

Our results do not coincide with the conclusions drawn from previous studies. According to Fadjukoff, Pulkkinen, & Kokko (2016), with increasing age women's achieved identity becomes more pronounced, compared to diffused identity. This tendency affected various aspects of life including religious beliefs, political preferences, careers, intimate and personal relationships, and lifestyle. The authors found that in earlier age periods achieved identity is more characteristic of women than men. However, by the age of 50 years, gender differences decreased in most areas (excluding the religious component, where men were characterized by diffused identities) (Fadjukoff, Pulkkinen, & Kokko, 2016). Similarly, according to the results of Kroger, Martinussen, & Marcia (2010), the status of achieved identity also increases by the age of 30–36 years; on the contrary, the status

of moratorium decreases. Soldatova (2007) demonstrated that in the crisis age periods the values of autonomous identity increase, while those of diffused identity decrease.

In our opinion, there are various reasons for such contradiction of the results obtained. On the one hand, this may be explained by the absence of clear boundaries of the crisis age periods. Accordingly, the crisis stages, intersecting with the crisis ones, bring interference to the results.

In addition, we found that differences in identity statuses are inherent to representatives of the Russian ethnic group; we found no differences among women of the Buryat ethnic group and among women of mixed ethnic origin in the crisis and inter-crisis age periods. We may assume that the classifications of E. I. Stepanova, V. A. Gansen & L. A. Golovei, V. F. Morgun & N. Yu. Tkacheva, and B. S. Bratus were developed on a sample of representatives of the Russian ethnic group. Otherwise, we fail to explain why there are no differences in identities among representatives of other ethnic groups.

Previous research has documented differences in the statuses of identity in individuals belonging to various cultures. For example, Abu-Rayya & Abu-Rayya (2009) focused on the identity characteristics of Australian Muslims. Pals (2006) investigated specific characteristics of narrative identity depending on ethnic belonging. Gfellner & Cordoba (2017) studied the features of ego power among Native Americans. Mohanty (2013) examined the features of ego power among Asians. McLean & Pasupathi (2012) studied general issues of the development of individuals depending on their ethnic belonging. Apparently, the indigenous inhabitants of Eastern Siberia have the same features, which explains the absence of differences in identity statuses depending on age.

Regardless of the classifications, women in the inter-crisis period represent a greater number of events that may happen to them in the future, as well as in the period of their lives that they subjectively relate to the future. Moreover, we cannot unequivocally assert that the end of the event period of life depends on whether the respondent is in a crisis period. This depends on the periodization that we use. Thus, blurring the boundaries of the crisis age periods cause interference of the results, as the crisis periods overlap the inter-crisis ones. However, our findings still suggest that women's subjective representations of the past and especially the future are more detailed in the inter-crisis periods.

Research Limitations

This study is a part of a more comprehensive study of identity in adult respondents depending on their family status, gender, ethnic, and religious belonging. Accordingly, the results presented in this paper are not conclusive. In particular, we did not specify family statuses of women in our study. We look forward to fill this gap in further research.

Conclusions

The data obtained in this study enabled us to conclude the following:

- In crisis and inter-crisis periods mature women are characterized by different statuses of identity. During crisis periods, the status of the achieved identity increases; the status of diffused identity decreases.
- During inter-crisis periods, women are characterized by a more detailed subjective representation of their lives, including a great number of events that may happen to them in the future, as well as in the period of life that they subjectively refer to the future. However, women with

the predominance of the achieved identity status provide a more detailed representation of their future during crisis periods.

- In crisis and inter-crisis periods women's statuses of identity differ depending on their ethnicity. During crisis periods, women of Russian ethnic group plan their future in terms of their unique identities. Women of Buryat ethnic group plan their future being guided by social roles attributed to them.

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No conflict of interest

Three-Component Model of Abuse in Interpersonal Communication

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Abstract

Introduction. One of the most relevant issues in practical psychology is the topic of abuse – manipulation, violence, and violation of personal boundaries of any kind. The purpose of this study is to provide a concise, structured view of communication abuse, expressed in a three-component model. The communication of abuse contains three components: asymmetry, variability, and purpose. The following hypotheses were verified: 1) the detection of abuse by the person in situations of interpersonal communication occurs with the simultaneous presence of all three components; 2) abuse communication can be identified more frequently (successfully) in case of a higher level of psychological competence.

Methods. To verify the hypotheses of the study, we created a questionnaire entitled Experimental Test for the Detection of Abuse. The sample of the study was comprised of 74 respondents aged 20 to 58 years, 34 of whom were professional psychologists (the group of 'psychologists') and 40 of whom were specialists of other professions (the group of 'non-psychologists'). The gender composition was as follows: 24 males and 50 females.

Results. The hypotheses verification showed the following results: 1) the empirical distribution of answers for the whole sample, as well as for the "psychologists" and "non-psychologists", does not differ from the theoretical one; 2) the results for the group of "psychologists" are significantly different from those obtained in the group of "non-psychologists".

Discussion. Both hypotheses of the study were confirmed: 1) the detection of abuse takes place in accordance with the proposed three-component abuse model; 2) psychological competence and other kinds of psychological activities reliably contribute to a more successful recognition of abuse.

Conclusion. In the article we formulated the conclusions about the correctness of the three-component abuse model and the influence of the level of psychological competence on the ability to determine abuse in social contacts. The presented model may become a method of analyzing communications of abuse and be used to correct them.

Keywords

abuse, violence, manipulations, abuse criteria, social intelligence, emotional intelligence, interpersonal communications, psychological competence

Highlights

► Abuse in interpersonal communication contains the following components: asymmetry, variability, and purpose.

- ▶ In most cases the process of detection of abuse in interpersonal communication takes place in the simultaneous presence of all three components.
 - ▶ Professional psychologists recognize abuse in interpersonal communication more successfully than representatives of other specialties.
 - ▶ Psychological education and increasing the level of psychological culture develop the ability to recognize abuse in interpersonal communication.
 - ▶ The three-component model of abuse in interpersonal communication can be used for psychological education and help to analyze social interactions.
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Introduction

These days the notion of interpersonal abuse can often be met in popular articles on relationships psychology, as well as in psychological texts intended for experts (Volkov, 2002; Gyuggenbyul', 2006; Miller, 2010; Orlov, 2000).

Systematization of contemporary views on the problem shows absence of a single position in the definitions and criteria for various kinds of violence and abuse (Orlov, 2000; Degtyarev, 2012). The very notions of *violence* and *abuse* are used in scholarly literature as mutually close, yet not equivalent (Efimova & Kovrov, 2015). They often stay in the relations of hierarchic inclusion: *abuse*, alongside such notions as *ill treatment* and *brutal treatment* (more often of children), is used as a broader notion as it includes all kinds of violence (Degtyarev, 2012; Gil, 1970; Green, 1980; Kempe, Silverman, Steele, Droegemueller, & Silver, 1962; Ruttenberg, 1990). These days they distinguish three basic types of violence: physical, sexual, and psychological. Economic violence is at times treated as a separate category (Romanova, 2013). Their definitions basically include enumerations of all possible acts against the victim, and their effects (damage) implicating all the key differences (Volkov, 2002; Orlov, 2000; Degtyarev, 2012; Ozhegov & Shvedova, 2006).

Interestingly, as Orlov (2000) states, the essence of any kind of violence is definitely psychological violence, which this author describes as a *nucleus* of any kind of violence. Thus, abuse in interpersonal communication, considered in this paper, is probably among the basic, elementary particles of psychological violence, making its essence. It is defined as exploitation by one person in the course of interaction with another person, which can do psychological or other harm, being based on manipulation, deceit, bullying and/or inability of this latter person to resist it due to some reasons.

The urgency of the problem of detection of someone's abuse in interpersonal communication is conditioned by numerous cases from both theory and practice of psychology, illustrating disharmonic relationships development, which entails psychological suffering (Efimova & Kovrov, 2015; Konovalov, Krasnenkov, Petrov, Rudnev, & Landyshev, 2017; Campbell, 1980;

Chernikov, 2001). Meanwhile, there are no standard theoretical abuse models, neither there are tools for the assessment of person's ability to detect abuse.

Of great interest and complexity are the kinds of latent, unevident abuse without clear signs of violence or manipulation, and their differentiation from those kinds of communication which do not contain abuse are of great interest and complexity. This is stipulated by a high level of subjectiveness in estimates and a large number of those factors that can influence them (Garanyan, 2015; Rasskazova et al., 2017).

Hence there arises a question of identification of the components of abuse communication which make it such, justification and empirical proof of the psychological abuse model in interpersonal communication, that would reflect their essence as "soft", i.e. not evident, and, on the other hand, evident, rude, such as direct psychological pressure or manipulation.

According to the proposed theoretical model, abuse in interpersonal communication contains three obligatory components:

1) asymmetry: absence of a mutual emotional link, consent on the common aims, agreement of opinions on the item making the essence or the result of communication at the time of interaction (*nonreciprocity*);

2) variability: availability of other ways of obtaining an actual reward, possibility to do without it and/or absence of an objective acute need in it (*optionality*) for direct or indirect satisfaction of vital requirements;

3) purpose: a reward making the aim of interpersonal interaction.

Combination of all these three normally initiates person's detection, i.e. disclosure of an abuse of this or that kind.

The following *theoretical hypotheses* have been put forward to verify the relevancy of the three-component model of abuse:

1. Personal abuse detection in interpersonal communication takes place in the simultaneous presence of all three components (asymmetry, variability, purpose).

2. Abuse detecting ability is higher in those persons who possess psychological competence of a higher level.

The aim of the investigation is the empirical testing of the items of the three-component model of abuse by way of comparing the empirical distribution of the tested persons' responses to the theoretical, model-provided one, and comparing responses distribution in contrast groups.

By its type, this investigation corresponds to a quasi-experiment (J. Campbell's typology) as it includes both detection of a common response to experimental treatment (availability of all the three abuse components), and response differences in the above groups, which are comparison groups to each other (Campbell, 1980; Kornilova, 2002).

The hypotheses of the empirical investigation are as follows:

1. All the tested respondents quite significantly demonstrate abuse detection and essentially more often in those points of the form which contain all the three components.

2. According to the form, abuse detection is significantly higher in the professional psychologists' group.

The sample of the study was comprised of 74 respondents aged 20 to 58 years, 46% of whom were professional psychologists.

Elaboration of the three component model of abuse entailed drawing up an original

form complying with its theory. This questionnaire was entitled Experimental Test for the Detection of Abuse.

The *subject* of the research is the abuse detection responses to the offered tasks and the level of their correspondence to the three-component model of abuse in interpersonal communication.

The research had the following *aims*:

1. To assess the validity of the three-component model of abuse according to the data concerning the level of similarity between the empirical and theoretical distribution of all the tested persons' responses.
2. To assess the differences in abuse detection shown by professional psychologists and, on the other hand, people of other professions.
3. To assess the possibility of application of the proposed form in its further modifications and elaboration of a test tool permitting to evaluate person's ability to detect abuse in interpersonal communication.

Methods

Survey sample

We surveyed respondents aged 20 and 58, whose education fluctuated between university not completed and PhD, professional psychologists among them. All the psychologists engaged in the research were trust practitioners having their own customer experience, regularly supervised, as well as regularly consulting those exposed to psychological manipulations and various abuse types. Their participation in the investigation in the capacity of tested persons is a significant contribution in the assessment of the validity of the proposed model as it enables comparison of their abuse detection ability to that of other respondents. In other words, they make the expert section of the sample as experts are supposedly able to detect abuse better than representatives of other trades.

In total, the general survey sample made 74 persons, 34 of whom were professional psychologists (the group of 'psychologists') and 40 of whom were specialists of other professions including teachers, lawyers, economists, software programmers, mathematicians, managers and leading personnel, creative professionals and graduate students of Moscow universities (the group of 'non-psychologists'). Educational levels: 8 persons (10.8 %): university not completed; 59 persons (79.7 %): university degrees, and 7 persons (9.5 %): PhDs.

The gender composition was as follows: 24 (32.4 %) males and 50 (67.6 %) females. "Psychologists" included 9 males and 25 females (26.5 % and 73.5 % correspondingly), while "non-psychologists" included 15 males and 25 females (37.5 % and 62.5 % correspondingly).

Response registration

The Investigation was carried out with the aid of remote technologies, via the Internet. The form was sent to the respondents as an online message with fill-in fields: email, name, age, education, and actual profession.

Then there was the following instruction: *Here are 20 short stories about people's relations. Some were borrowed from fiction. You don't have to remember the pieces of literature since all the info you need for your answer is in the story itself. Answer, which of the stories contain abuse or manipulation of one person by another, and which don't. You will find this question in the end of each story.*

Below there were form tasks.

The tested persons' responses were registered online and automatically stored in a table, wherefrom they were manually transferred to a summary table, where they underwent systematization and primary treatment (responses of various categories were calculated, then split into groups, etc.).

Experimental Test for the Detection of Abuse

The form drawn up to test and verify the proposed model, consisted of tasks being brief descriptions of hypothetical life situations and compiled so that they embrace the whole range of possible combinations of all the three components of communication abuse. Example: *Olga knows that Natalia's a kind person who will not refuse aid. During a break between lectures Natalia intended to go to the library, yet Olga asks Natalia to go and by a sandwich for her in a store. Is Olga abusing Natalia's kindness?* The essence of the test is in the respondents' detection whether there is or there is no abuse in the proposed examples of interpersonal interaction.

Thus, each test task included 1 to 3 components of hypothetical communication abuse: asymmetry, variability, and purpose. The questionnaire was entitled Experimental Test for the Detection of Abuse.

Besides, while constructing those hypothetical situations contained in the form, consideration was given to other factors which could distort the test result: gender, age and status in the social hierarchy. According to a number of studies, in those tasks that include deceit or manipulation components, detection is influenced by a vast range of factors (Gerasimova & Sergienko, 2004; Ekman, 2015; Ekman & O'Sullivan, 1991). Respondents typically attach the roles of manipulators or deceivers to those characters who may not be such. These phenomena are not similar and are distributed in the sample in an uneven manner. Such factors may be: age-related changes in the ability to identify deceit and abuse; differences in the idea of role interaction between males and females, people of different age and social status (Gerasimova & Sergienko, 2004; Ekman, 2015; Ekman & O'Sullivan, 1991).

That is why most tasks are constructed so that their characters are of the same gender and age, have an equal or alike status, which all brings them close to this criterion. Exception is provided by 4 tasks (no. 4, 10, 14, and 18), which were introduced in the form with the aim of possible recognition of these factors' impact on the responses: erroneous abuse detection where it was not supposed to be, and vice versa.

Apart from the tasks purposefully constructed for the form, the latter includes 4 situations borrowed from fiction (I. Il'f, E. Petrov, *The Twelve Chairs*; A. S. Pushkin, *Eugene Onegin*; A. S. Pushkin, *Captain's Daughter*; I. S. Turgenev, *Fathers and Sons*), and 2 more tasks with a humorous component: a made-up situation with a Russian epic hero, warrior Alyosha Popovich, and a scene out of the *Winnie-the-Pooh* cartoon film.

This was done to prevent fatigue and monotony, confusion risk, and wrong responses to the test tasks, and it also makes the form psychologically attractive for the respondents.

The final test included 12 tasks reflecting all possible combinations of the components of abuse communication. Out of this number, 10 tasks contained combinations of all the three components and presumed availability and detection by the respondents of some abuse, and 10 "false" tasks containing an incomplete set of components of abuse communication, which did not presume detection of any type of abuse.

Responses were graded according to four degrees: *Definitely yes!*, *Rather yes*, *Rather no* and *Definitely no!* This gradation was applied because when the form was initially elaborated, there was an intention to take into account gradation of the responses, yet later it was considered superfluous. Nevertheless, it presumably favors the verity of the results due to "legalization" of doubt, which leads to the reduction of psychological tension while responding questions and to the display of the first, right response (Rasskazova et al., 2017; Pakhomov, & Sudyina, 2013). Thus, in calculation of the results and their statistical treatment responses were viewed as positive or negative, without their gradation.

According to the existing hypothesis, abuse detection and the accompanying deductions and responses are to be manifested in just those instances where all the three components are combined, which is expressed through the description of the emotional aspect of the relations, intentions and plans, as well as the circumstances of the event, i.e. in one half of the hypothetical situations (50 %). and on the contrary, in case at least one component is not present, there should be no abuse detection and the response to the test question should be negative.

Statistical hypotheses and treatment of data

The key variable for this investigation is dependant variable *Dt* (derived from English *detection*), i.e. the amount of those responses to the form tasks coinciding with the theoretical ones, envisaged by the model; its upper bound is 20 points.

The independent variable of the investigation is the test task content. This may acquire two logical values: "abuse" and "no abuse". This value depends on the completeness of the set of abuse components within each task.

From out of the variables beyond the researcher's control, one should note such factors as personal convictions and worldview peculiarities of each respondent, as well as their psychological state during the test time.

The major objective of data treatment was to adequately define the following:

1. Total amounts of "right" (i.e. envisaged by the three component abuse model) responses coincide with the assumed ones or stay close to these in the whole sample; their distributions are statistically similar.

In this case the statistical hypotheses take the following form:

H_0 : empirical distribution of the *Dt* values does not demonstrate any significant difference from the theoretical one (desired);

H_1 : empirical and theoretical distributions of the *Dt* values demonstrate a significant difference.

2. Total amounts of points (*Dt*) and their distribution in the "psychologists" group show a significant upward difference from the analogous results in the "non-psychologists" group.

The statistical hypotheses for this task took the following form:

H_0 : empirical distributions of the *Dt* values in the "psychologists" and "non-psychologists" groups do not demonstrate any significant difference;

H_1 : empirical distribution of the *Dt* values in the "psychologists" group shows a significant upward difference from the "non-psychologists" group (desired);

H_2 : empirical distribution of the *Dt* values in the "psychologists" group shows a significant downward difference from the "non-psychologists" group.

One secondary objective of the investigation is to study the distribution of the responses of the whole sample and the contrast groups against the test tasks. This might help reveal irregularity in the success of their solution and define which of them arouse unanimity in responses, and which resulted in the greatest dispersion.

This will further permit to study the nature of differences in abuse detection and task perception. Besides, this will provide information for future investigation of the form's validity, reliability, adjustment of its possibilities, its further improvement.

The following statistical hypotheses are tested:

H_0 : empirical and theoretical distributions of responses in every task do not show significant difference;

H_1 : empirical and theoretical distributions of responses in every task show significant difference.

The data were statistically treated via the the Excel (Microsoft Excel 2007) worksheets. The obtained results were tabulated and mathematically treated by way of programming statistical criteria formulae in the function entry.

Investigation of the general response distribution regarding its closeness to the normal one was carried out by two ways:

1. According to N. A. Plokhinskii's method, by way of comparing excess indexes and asymmetry to their tabulated critical values pointed by this researcher (Sidorenko, 2007).

2. According to E. I. Pustyl'nik's method, by way of calculating critical excel values and asymmetry by his formulae and comparing these values to the empirical ones (Sidorenko, 2007).

Further, while comparing the empirical distribution to the theoretical one, conditioned by the available three component abuse model, the χ^2 Pearson criterion was applied in the responses of the whole sample and comparison groups.

To reveal significant differences between the results shown by the contrast groups and search for the critical point of distribution separating these values, applied was Kolmogorov-Smirnov's λ criterion, while to assess the shift of these values separated by this point, applied was Fisher's φ^* criterion.

Apart from the respondents' results and their response distribution, studied also were the qualities and characteristics of the question tasks making the form: calculated was the "error" rate in absolute and percentage terms for each task, as well as calculated was Pearson's χ^2 criterion for the comparison of the empirical distribution of "right" responses to the form tasks with the theoretical ones. This permitted to define later which responses caused the greatest scatter of responses and single out those which are most heavily influenced by personal factors beyond the researcher's control: worldview, personal attitudes, experience, etc.

Results

All the results were calculated at this stage of investigation in raw points.

It should be noted that conversion of raw points into standardized ones is deemed necessary for these methods, yet at this stage it is not possible due to the small size of the sample (Sidorenko, 2007).

First analyzed were the parameters of distribution of the total amount of "right" responses (the

Dt variable) of the whole sample, and then a general distribution graph was constructed (Fig. 1) and descriptive statistics calculated: $\overline{M} = 17.18$; $Me = 17$; $Mo = 17$; $SD^2 = 2.53$; $SD = 1.59$; $A = -0.44$; $E = -0.03$.

Investigation of responses distribution regarding its closeness to normal distribution gave the following results:

1. In accordance with N. A. Plokhinskii's method, the ratio of the absolute values of asymmetry and excess to the non-sampling error should not be less than 3 (Sidorenko, 2007).

$$t_A = \frac{|A|}{m_A} = 1.56 \leq 3 \text{ and } t_E = \frac{|E|}{m_E} = 0.05 \leq 3.$$

2. In accordance with E. I. Pustyl'nik's method, empirical values of asymmetry and excess (in their absolute terms) should be less than calculable critical values (Sidorenko, 2007).

$$|A_{emp}| = 0.44 \leq A_{cr} = 0.83 \text{ and } |E_{emp}| = 0.03 \leq E_{cr} = 2.58.$$

As is clear from the above results, distribution of "right" responses in the whole sample does not show significant difference from the normal one (Sidorenko, 2007).

The next stage of data treatment was Pearson's χ^2 criterion calculation regarding coincidence of the empirical distribution of the band score (*Dt*) obtained by the respondents with theoretical distribution.

This means that correspondence of the responses to the hypotheses set forth can only be proved on condition that the value of Pearson's χ^2 criterion is insignificant. In other words, theoretical value of the amounts of points is to be absolutely equal for all the tested persons making 20 points, which in this case constitutes theoretical (ideal) distribution. Absence of significant difference between empirical and theoretical distributions would mean correctness of the proposed three component model, which was used to draw up the tasks.

Calculation of the values for Pearson's χ^2 criterion showed the following results:

- ▶ $\chi^2 = 38.75$ ($p \geq 0.05$) for the whole sample (74 persons);
- ▶ $\chi^2 = 10.6$ ($p \geq 0.05$) for the "psychologists" (34 persons);
- ▶ $\chi^2 = 28.15$ ($p \geq 0.05$) for the "non-psychologists" (40 persons).

Such results make clear that the empirical distribution of the *Dt* values representing cumulative ability to detect abuse in interpersonal communication, does not significantly differ from the theoretical distribution.

As described above, to study differences in abuse detection abilities shown by professional psychologists and people of other trades, one had to divide the total sample into corresponding groups of "psychologists" and "non-psychologists". Primary orientation in the differences required their distributions to be separated and reflected in a particular graph (Fig. 2).

Apart from this, descriptive statistics for each contrast group have also been calculated as follows: for the "psychologists" $\overline{M} = 17.82$; $Me = 18$; $Mo = 18$; $SD^2 = 1.54$; $SD = 1.24$; $A = -0.15$; $E = -0.36$; for the "non-psychologists" $\overline{M} = 16.62$; $Me = 17$; $Mo = 17$; $SD^2 = 2.75$; $SD = 1.66$; $A = -0.25$; $E = -0.33$.

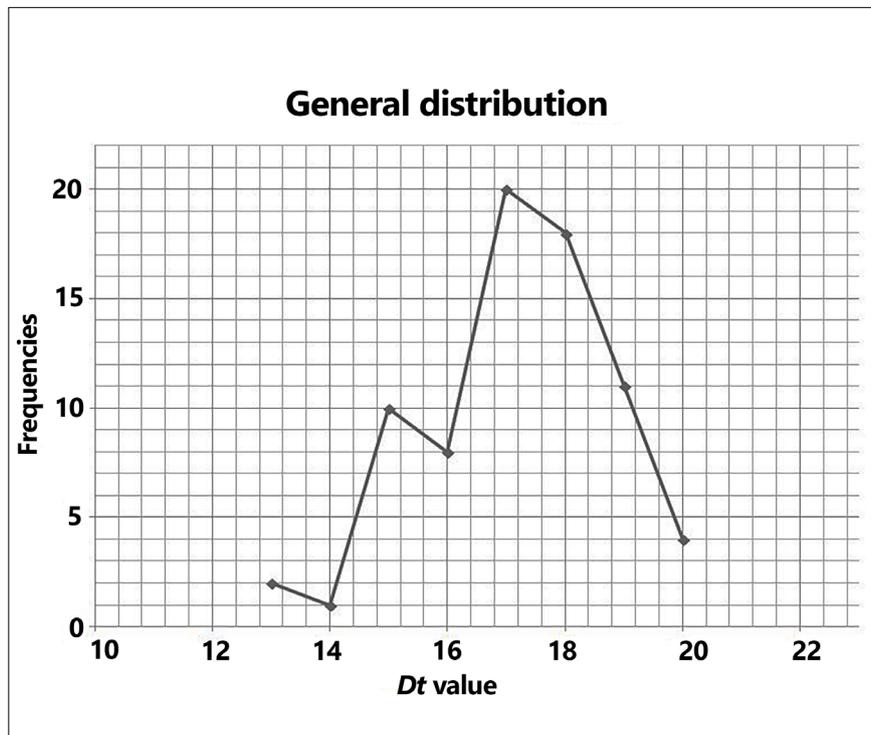


Figure 1. General distribution graph

Below shown are the results of investigation of distributions in the comparison groups regarding their closeness to the normal value:

For the “psychologists”:

$$1. t_A = \frac{|A|}{m_A} = 0.35 \leq 3 \text{ and } t_E = \frac{|E|}{m_E} = 0.43 \leq 3 \text{ (ac. to N. A. Plokhinskii).}$$

$$2. |A_{emp}| = 0.15 \leq A_{cr} = 1.17 \text{ and } |E_{emp}| = 0.36 \leq E_{cr} = 3.48 \text{ (ac. to E. I. Pustyl'nik).}$$

For the “non-psychologists”:

$$1. t_A = \frac{|A|}{m_A} = 0.64 \leq 3 \text{ and } t_E = \frac{|E|}{m_E} = 0.43 \leq 3 \text{ (ac. to N. A. Plokhinskii).}$$

$$2. |A_{emp}| = 0.25 \leq A_{cr} = 1.09 \text{ and } |E_{emp}| = 0.33 \leq E_{cr} = 3.22 \text{ (ac. to E. I. Pustyl'nik).}$$

Distributions of responses in both comparison groups do not show significant difference from the normal one.

The graph (Fig. 2) demonstrates that most results of the “psychologists” group are concentrated

in its right section, in the high value zone, while distribution of the results of the “non-psychologists” is shifted somewhat to the left and has a greater range of values.

To achieve maximum accuracy in calculating the significance of these differences, applied was Fisher’s φ^* criterion along with Kolmogorov-Smirnov’s λ criterion.

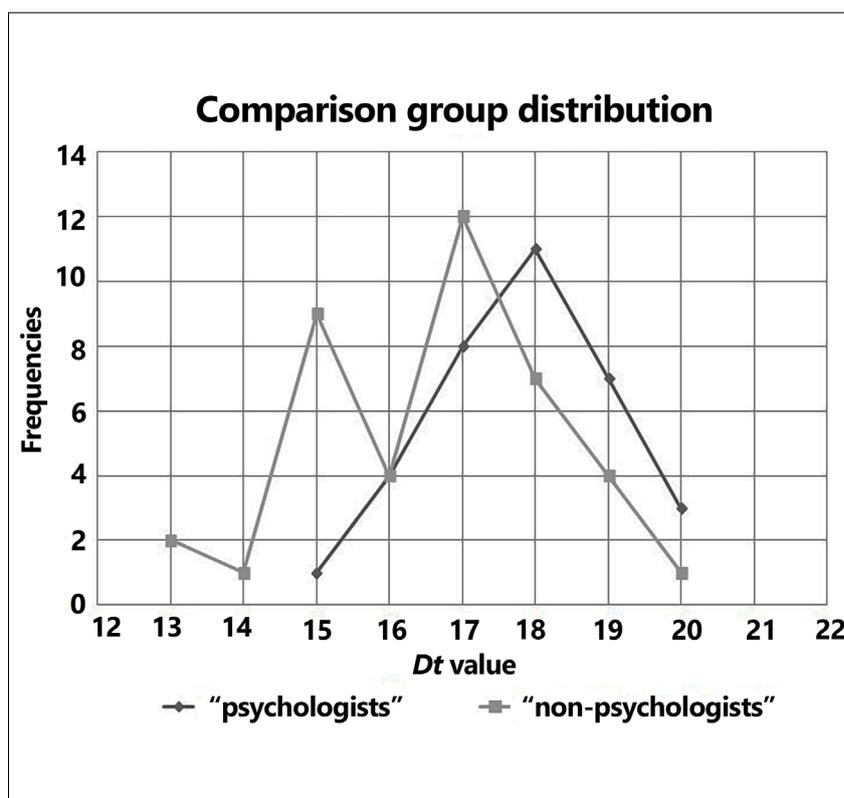


Figure 2. Distribution of responses in the groups of 'psychologists' and 'non-psychologists'

This combination of statistical criteria enables to most accurately define the differences in the comparison groups' results: Kolmogorov-Smirnov's λ criterion permits to define the key value, the critical point of the distribution which separates respondents into those who “detect the effect” and those who “do not detect the effect”; in its turn, Fisher's φ^* criterion is applied to calculate the degree and significance of the contrast groups relative to this critical point (Sidorenko, 2007).

As Kolmogorov-Smirnov's λ criterion was calculated, defined was the critical value separating the results of the contrast groups in the values achieved:

$$Dt = 17; \lambda = 1.362 (p \leq 0.05).$$

Thus, the achievement of the described “effect”, i.e. the key criterion for the differences between the results of the contrast groups, is this value's exceedance.

Calculation of Fisher's φ^* criterion regarding this value demonstrated the following significant result:

$$\varphi^* = 2.786551 (p \leq 0.01).$$

Additionally studied was general distribution of responses to each task of the form. The table below shows distribution of responses to each task (Tab. 1).

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
"Right"	72	68	60	57	63	66	67	66	50	64	39	64	68	49	69	71	67	66	71	74
"Wrong"	2	6	14	17	11	8	7	8	24	10	35	10	6	25	5	3	7	8	3	0

It is obvious that maximum number of discrepancies with the theoretical values is shown in tasks no. 9, 11, and 14 (bold type in Table 1), which is slightly different from what was assumed before.

To study the differences between the empirical and theoretical (ideal) distributions of responses to each task, applied was Pearson's χ^2 criterion, which showed the following values:

- ▶ $\chi^2 = 49.2$ ($p \leq 0.01$) for the whole sample;
- ▶ $\chi^2 = 14.7$ ($p \geq 0.05$) for the "psychologists";
- ▶ $\chi^2 = 38.35$ ($p \leq 0.01$) for the "non-psychologists".

The obtained result reflects the difference between the empirical distribution of the total number of the accumulated right responses and, on the other hand, the theoretical one for the whole sample. Table 1 clearly shows that the response scatter regarding some questions is rather high.

Nevertheless meaningful is the fact that after the sample was divided into two groups according to the respondents' trade, it turned out that in case of the "psychologists" the difference between the empirical distribution of responses to each task and the theoretical one was unexposed, contrary to the "non-psychologists", in whose case the shown differences are significant as before.

Additional calculation demonstrated that in case of exclusion from distribution of the results referring to tasks no. 9, 11, and 14 (the greatest response scatter), the value of criterion $\chi^2 = 16.42$ ($p \geq 0.05$) for the whole sample.

Most probably a result of the kind reflects the already shown differences in the ability to detect abuse by those who have been professionally trained in psychology.

Discussion

The objective of this paper was to formulate and substantiate the three- component model of abuse which enables to both detect hidden or latent types of abuse and analyze the availability of definite communication components (asymmetry, variability, and aim) by the signs of subjective reactions characteristic for abuse. An important factor highlighted in the research is closeness of the empirical distribution of the responses of the whole sample and contrast group

to the normal one. This is an encouraging result permitting to characterize the sample as close to a representative one, hence it is possible to assert natural and non-artifact nature of the results obtained through statistical criteria.

Empirical verification of the hypothesis of a three-component structure in communication abuse has shown the following: neither the sample, nor any contrast group demonstrates significant differences between the empirical distribution of the responses and the theoretical one. At this stage of research admitted is H_0 : the empirical distribution of the Dt values does not significantly differ from the theoretical (desired) one. Thus, evident is the commonness of responses to hypothetical situations of interpersonal interaction with abuse components in those cases where the effect of gender, age, intergenerational, other stereotypes and personal factors is minimized. This means that classifications and divisions of the whole amount of interpersonal communication constituents into three components, or criteria describing abuse communication (asymmetry, variability and aim), are correct.

Therefore, we may assert that abuse detection in interpersonal communication requires combination of all the three above mentioned components. Consequently, the hypothesis of the three-component structure of abuse in interpersonal communication also seems to be valid.

Nevertheless, in spite of the commonness demonstrated by the responses for the whole sample, revealed have been significant differences in distributions of responses in the groups of "psychologists" and "non-psychologists" towards a statistically significant raise of the overall score in the former group. Accepted is statistic hypothesis H_1 : the empirical distribution of the Dt values in the "psychologists" group significantly differs from the "non-psychologists" towards greater values (desired). Thus, it is evident that abuse detection in the drawn up form is significantly higher with professional psychologists than with the people of other professions.

All the declared results permit to abandon, at this stage, response qualifications "right" and "wrong" in inverted commas since the initial, first theoretical only, ideas of their fidelity or erroneousness find endorsement. Besides, another important result is the demonstration of the influence produced by personal factors on abuse perception and detection, shown by the example of those tasks where these factors were included. In fact this demonstration illustrates the "noise" in abuse detection stipulated by the impact of individual peculiarities. According to the results of statistical calculation (for the whole sample) accepted is hypothesis H_1 : empirical and theoretical distributions of responses to each task are significantly different. It should be noted that this result of the whole sample is not common for the contrast groups: while the differences are retained for the "non-psychologists", the other group did not reveal any differences. This means that in regard of the "psychologists", accepted is hypothesis H_0 : empirical and theoretical distributions of responses to each task do not significantly differ. This most probably testifies that those questions which arouse most contradictions in responses, did not cause such difficulties with the "psychologists". In this case one may assume that these questions serve, at this stage, as key markers in diagnosing the ability to detect abuse in the form.

Such an assumption is confirmed by the calculations carried out after the most "conflictive" questions (no. 9, 11, and 14) have been excluded from the distribution. Then no statistic differences can be found in the distribution of responses in the whole sample. This enables to state that the above tasks are most exposed to personal factors distorting the observation result and fail to reflect the common denominators in abuse detection, unlike all the rest tasks.

Conclusion

The proposed three-component model of abuse appears to be valid for studying the nature of abuse and manipulation, improving and enriching the ways of coping with it, developing self-consciousness and possibly changing individual reactions in interpersonal contacts. Evidently being a constituent of social and emotional intelligence, abuse detection ability may be a trend in their investigation and development as it implicates close connection with such aspect of the latter as empathy, contextual understanding in communication, realization of one's own emotional signals, etc. (Chernikov, 2001; Arshanskaya (Sheshukova), 2018; Lyusin, 2004; Ushakov, 2004).

Proceeding from the necessarianism principle innate in the three-component model of abuse, one can disclose those unconscious components of interaction which lead to subjectively unpleasant emotions in disharmonic communication (Kharlamenkova, 2013).

At the same time the revealed differences in responses may be of certain use for studying both the general and the individual (personal) in abuse detection, including erroneous detection as well, and in studying the patterns of social interaction between the person and the nature of public morality.

All the above related aspects can be applied to enhance the psychological medium inside man, around him, and in the society as a whole. Here is what Erich Fromm writes about it: "What kind of society corresponds to this goal of mental sanity and what is the desired structure of sane society? First of all, the society where none is a stepping stone to somebody's goal, but where everyone is always and solely a goal all by himself; the society where none is used, neither uses himself for the purposes which do not unleash powers of man; where man is the center and where his economic and political activities comply with the aim of his own development" (Fromm, 2015, p. 302).

Most probably the Experimental Test for the Detection of Abuse, provided it is properly revised and improved, its properties studied, and links with other methods of mental diagnosis established, can become a tool in detecting or studying all the above described aspects.

Final provisions

1. Empirically obtained responses to the form tasks coincide with the theoretical ones, the latter based on the principles of the three-component model of abuse in interpersonal communication. As assumed before, they depend on the availability (in the task) of the complete set of communication components defined in the theoretical model as abuse components. Thus, the theoretical provisions of the three-component model of abuse in interpersonal communication seem valid.

2. The level of abuse detection in professional psychologists' test tasks is higher against the people of other trades. This proves the idea that psychological competence, individual psychological work and other ways of psychological culture improvement favor the abilities to detect abuse, as well as improve social competences in general.

3. Distribution of the tested persons' responses to the test tasks is not even. There is a need for further studies of those factors influencing such responses: peculiarities of the emotional and will power spheres, ideas of ethics and morals, beliefs, etc.

The tasks causing the greatest response scatter might perhaps be used as more complicated markers in a study of individual differences in abuse detection; they may need correction and improvement in the further adjustment of the form.

Further modification and validation of the test material based on the shown three-component model of abuse seem possible in case of a larger sample, greater number of variations in test tasks, parallel application of other diagnostic and research methods.

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