

## Hardiness of Adolescents with Special Educational Needs: Research Results

Dina Ye. Shchipanova<sup>a</sup>, Nataliya G. Tserkovnikova<sup>a</sup>, Bella A. Uskova<sup>a</sup>,  
Viktor V. Puzyrev<sup>a</sup>, Anastasia S. Markova<sup>a</sup> and Evgenii P. Fomin<sup>b</sup>

<sup>a</sup>Russian State Vocational Pedagogical University, Ekaterinburg, RUSSIA; <sup>b</sup>Samara State University of Economics, Samara, RUSSIA

### ABSTRACT

The relevance of the problem under study is due to the fact that the current worldwide trend shows high dynamics of the increase in the number of children with SEN, which requires that society in general and the education system, in particular, should develop approaches to the socialization and adaptation of people with SEN through strengthening their personal resources. The purpose of the article is to explore the peculiarities of the phenomenology and structure of hardiness of adolescents with SEN in comparison with the conventionally healthy peers. The main method applied in the research of this problem is a comparative study based on the cross-sectional method, which makes it possible to identify the specificity of hardiness of adolescents with SEN. The results of the research: the research revealed the peculiarities of expression and relationship of the components of hardiness of adolescents with SEN in comparison with the conventionally healthy peers. The materials of the article may be useful for educational and social psychologists in devising programs for psychological support and comprehensive psycho-social assistance to families with children with SEN, which will contribute to the successful integration of adolescents with SEN in society.

### KEYWORDS

Hardiness, social and psychological adaptation,  
psychological and pedagogical program,  
adolescents with special educational needs

### ARTICLE HISTORY

Received 20 April 2016  
Revised 28 April 2016  
Accepted 9 May 2016

## Introduction

### *Urgency of the problem*

The current worldwide trend shows high dynamics of the increase in the number of children with special educational needs (SEN) According to the data of the World

**CORRESPONDENCE** Dina Ye. Shchipanova ✉ [dina\\_evg@mail.ru](mailto:dina_evg@mail.ru)

© 2016 Shchipanova et al. Open Access terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>) apply. The license permits unrestricted use, distribution, and reproduction in any medium, on the condition that users give exact credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if they made any changes.



Health Organization, disabled people account for one tenth of the population, globe, 120 million of them being children and teenagers (Angelova, Le-van & Mantarova, 2016; Akhmetzyanova, 2016). In Europe, recent estimates place the number of children with special educational needs (SEN) at 15 million (European Commission, 2010). Statistics show that each year there is an increase in the number of children with SEN also in the Russian Federation.

One of the difficulties confronting the child with disabilities is socialization. These children's socialization occurs in fairly small groups, mainly in the family and in the network of special (remedial) institutions. The peculiarities of functioning of organizations concerned with the education and training of children and adolescents with SEN both in retrospect and at present are based mostly on the medico-biological approach and the segregation model. Thus, the socialization of children with SEN currently occurs in relatively homogeneous groups of peers. As early as in the 30-s of the XX century L.S. Vygotsky (1934) noted that despite all the advantages a special school has a major drawback: it restricts its pupils to a micro society, creates a limited living space in which everything is tailored to the peculiarities of the children and does not prepare them sufficiently for real life.

The contradiction is intensified by the trend towards reducing the number of special educational organizations, as well as by the difficulty in implementing inclusive education in Russia to overcome the segregation models and to enhance socialization of people with SEN. These contradictions are noted by S.V. Alekhina (2016): there are changes at the legislative and institutional levels, however, at the socio-psychological level there is a fairly slow acceptance of ideas of inclusion both in the educational community and in the Russian society in general, including families that have children with SEN. Besides, the representatives of most social groups of the modern Russian society are not ready for supporting interaction with people with SEN. At the same time adolescents with SEN only in rare cases have a sufficient level of auto-competence and communicative skills to successfully engage in social interaction.

Thus there is a contradiction between the approaches declared in pedagogy and psychology and the practice of real life of children and adolescents with SEN. In this regard the development of hardiness as a set of patterns (attitudes and skills) to help convert the negative impacts into opportunities can serve, in our opinion, as the basis for the successful adaptation of children and adolescents with SEN in a wide range of social groups and situations. The most important aspect of the study of the phenomenon, reflecting its relevance, is that the components of hardiness develop in childhood and adolescence (Leontiev & Rasskazova, 2006; Maddi, 2006; Akhmetzyanova & Saitgaleeva, 2016).

Despite the sufficient level of knowledge of the component composition, structure and manifestation of hardiness of the individual in various spheres of life, the peculiarities of hardiness of adolescents with SEN have hitherto not been studied. Besides, there are no comprehensive psycho-pedagogical programs of development of hardiness of adolescents with SEN. Therefore, there is a contradiction between the lack of topical research and the demand for the development of both theoretical and applied aspects of the scientific problem of development of hardiness of adolescents with SEN.

The subject of this study is the peculiarities of hardiness of adolescents with special educational needs

The main hypothesis of the research: there are peculiarities in the levels of expression and relationship of the components of hardiness of adolescents with SEN in comparison with the conventionally healthy peers.

## **Methodological Framework**

## Literature Review

The analysis of the foreign research and the research conducted in Russia as regards the phenomenon under study showed that the term hardiness was first introduced by S.R. Maddi & S.C. Kobasa (1984). The phenomenon of hardiness is studied from the perspective of existential theory of personality. The theory of S.R. Maddi & S.C. Kobasa (1984) explicates hardiness as a system of convictions about oneself, about the world, about relations with the world. It is a disposition that includes three relatively autonomous components: commitment, control, challenge. Commitment is determined by S.R. Maddi (2002, 2004) as a conviction that commitment to what is happening gives a feeling of fullness of life. Control is a conviction that one's own efforts make it possible to affect the outcome of what is happening. Challenge is a conviction of a person that everything that happens to him contributes to his development through active acquisition of knowledge from the experience and its subsequent application (Maddi, 2002, 2004).

Hardiness has been studied by Russian researchers since 2000. The hardiness of students was studied by D.A. Leontiev & Ye.I. Rasskazova (2006), M.A. Odintsova (2016), N.O. Leonenko & A. Novakovski (2015), G.V. Vanakova (2011), T.V. Nalivaiko (2006), N.M. Volobueva (2012), M.Yu. Kuzmin (2012), M.V. Loginova (2010) and others. The peculiarities of hardiness of different occupational groups are studied by T.V. Volodina (2014), R.I. Stetsishin (2008). The study of hardiness of schoolchildren is the subject of research of E.V. Shvareva (2012), V.R. Petrosyants (2011), A.N. Fominova (2012). The hardiness of children and adolescents with SEN is currently not studied in Russian psychology.

In the Federal Law "On education in the Russian Federation" the following definition is given: "a student with special educational needs is an individual with deficiencies in physical and/or psychological development, confirmed by the psychological, medical and pedagogical commission, that impedes the acquisition of education without special conditions being created". Students with SEN include such citizens of the Russian Federation as deaf, hearing-impaired, blind, visually impaired, students with musculoskeletal disorders, retarded mental development, severe speech disorders, autism spectrum disorders, mental retardation, with special needs in their psychological and physical development, with complex defects.

The European Commission (2013) suggests that children with SEN be classified on the basis of the approach proposed by the Organization for Economic Co-operation and Development (OECD). OECD went further in inviting the 22 countries participating in its ongoing studies of special educational needs (SEN) to reclassify their national categories into a three-category framework (2013). Framework for classification of children with special educational needs (SEN). Category A: disabilities with organic origins where there is substantial normative agreement about the categories (for example, sensory, motor, severe and profound intellectual disabilities). Category B: difficulties that do not appear to have organic origins or be directly linked to socioeconomic, cultural or linguistic factors (for example, behavioral difficulties, mild learning difficulties, specific learning difficulties and dyslexia). Category C: difficulties that arise from socio-economic, cultural and/or linguistic factors; some disadvantaged or atypical background that education seeks to compensate for (European Commission, 2013).

The worldwide practice of working with children with SEN is enshrined in many legislative initiatives. The aims of European policymakers in this area are chiefly supported at an institutional level by the European Agency for Development in Special Needs Education (EADSNE), established in 1996, whose remit is to improve the quality



of special needs provision across Europe by encouraging cross-country collaboration and knowledge exchange. In the Disability Strategy 2010–2020, the European Commission notes ‘the strong mandate on the EU and Member States to improve the social and economic situation of people with disabilities’, and further underlines ‘the aspiration of creating a barrier-free Europe’. Inclusive education is supported by European Commission (2012) funding and promoted jointly by EADSNE and UNESCO.

### **Materials and Methods**

During the study the following methods were used

- theoretical methods: system analysis, synthesis, generalization, theoretical analysis of philosophical, pedagogical, psychological, scientific, methodical and technical literature on the research problem;
- empirical methods: observation, conversations, questioning, psychological testing.

Methods of data collection: questionnaires (to obtain information on the socio-demographic parameters of the sample), observation and conversation, test of hardiness of the individual. Test of hardiness is a Russian language adaptation of the English language questionnaire "Hardiness Survey" worked out by S. Maddi (Leontiev & Rasskazova, 2006).

Methods of mathematical statistics: descriptive statistics, comparative and correlation analysis. The comparative analysis of subsamples was conducted with the use of the Mann-Whitney non-parametric criterion of calculation, the correlation analysis was carried out with the use of Spearman's rank correlation coefficient calculation.

The experimental site of the research was based in educational institutions of Ekaterinburg. The study involved 146 adolescents in schools, ranging in age from 13 to 17 years. In accordance with the hypothesis the sample was divided into two subsamples: a subsample of adolescents with SEN (hereinafter – SEN) and a subsample of conventionally healthy adolescents (hereinafter – CH) as the control sample.

The subsample of adolescents with SEN was 36 people (31 boys and 5 girls) aged from 13 to 17 years (the average age – 15.05 years). Special educational needs of adolescents in this subsample are conditioned by the following diseases: epilepsy, birth trauma effects, encephalitis effects, neuroinfection, diabetes, various forms of infantile cerebral paralysis. The adolescents with SEN of this subsample are enrolled in grades 7-12 of specialized remedial boarding schools for children with SEN studying adapted programs of basic and secondary general education. They have intact intelligence, there is no visible manifestation of mental pathologies, they move themselves, they do not have serious speech pathologies, they communicate freely.

The subsample of conventionally healthy adolescents served as a control group, making it possible to reveal the specificity of hardiness manifestation of adolescents with SEN. The subsample of conventionally healthy adolescents included 110 people (43 boys and 67 girls) aged from 14 to 18 years (the average age – 15.61 years). The adolescents do not have the status of individuals with SEN, they are enrolled in grades 7-11 of general education schools.

The diagnostics was carried out frontally, in classes, in an environment familiar to the adolescents. The survey participants were guaranteed anonymity and the confidentiality of the results obtained.

The experimental work took place in several stages.

The aim of the ascertaining stage of the experiment was to study theoretically the phenomenon of hardiness of the individual, as well as the approaches to the study of people with SEN.

The forming stage of the research (2014-2015) included the empirical study of phenomenology and the relationships between the components of hardiness of adolescents with SEN in comparison with the conventionally healthy peers.

The third stage (2015-2016) is the perception and systematization of the results obtained, the formulation of conclusions and designing psychological pedagogical program of the development of components of hardiness of adolescents with SEN.

## Results

### *Phenomenology of hardiness of adolescents with SEN and conventionally healthy adolescents*

As a result of assessing the indicators of kurtosis and skewness in the total sample and in subsamples it was revealed that the distribution differs from being normal (Gaussian distribution), therefore, when interpreting we will rely on the median value and percentage distribution. The median value in both subsamples on all the components of hardiness are at the average level according to the test standards (refer to Table 1).

**Table 1.** The results of descriptive statistics (N=146)

Sub-sample	Parameters	Age	Commitment	Control	Challenge	Common level of hardiness
SEN	Mean	15,0556	34,2222	17,3889	11,9167	63,9722
	Std. deviation	1,06756	5,67255	3,64322	2,01955	8,57067
	Median	15,0000	34,0000	16,0000	12,0000	62,5000
	Variance	1,140	32,178	13,273	4,079	73,456
	Minimum	13,00	23,00	12,00	8,00	50,00
	Maximum	17,00	44,00	26,00	15,00	86,00
	N	36	36	36	36	36
CH	Mean	15,6182	33,1091	28,9818	14,7091	76,8636
	Std. deviation	0,99523	7,24581	7,25168	4,29283	15,47266
	Median	16,0000	33,0000	29,0000	14,0000	74,0000
	Variance	0,990	52,502	52,587	18,428	239,403
	Minimum	14,00	19,00	11,00	6,00	43,00
	Maximum	18,00	54,00	49,00	25,00	127,00
	N	110	110	110	110	110

The analysis of indicators of hardiness allowed to reveal quantitative and percentage correlation of adolescents with low, medium and high levels of expression of hardiness components (refer to Table 2). The data in the sub-sample of adolescents with SEN indicate the absence of respondents with high levels of expression of the hardiness components. By commitment and challenge indicators in adolescents with SEN medium expression levels dominate, and by control indicators low level dominates. While in the sub-sample of conventionally healthy (CH) adolescents the average levels of expression of hardiness components dominate; there are teenagers as well with high levels of expression of the components. This indicates that the majority of conventionally healthy adolescents are able to cope with stressful situations, but young people with SEN demonstrate sufficient expression of hardiness components only partially.

**Table 2.** Quantitative and percentage distribution of hardiness components levels (N=146)

	Low Level		Average Level		High Level	
	SEN	CH	SEN	CH	SEN	CH
Commitment	8 people (22,2 %)	42 people (38,2 %)	28 people (77,8 %)	62 people (56,4 %)	0	6 people (5,5 %)
Control	29 people(8 0,6 %)	10 people(9, 1 %)	7 people (19,4 %)	89 people(8 0,8 %)	0	11 people(1 0,1 %)
Challenge	6people( 16,7 %)	14 people(1 2,7 %)	30 people(8 3,3 %)	78 people(7 0,9 %)	0	18 people(1 6,4 %)
Common level of hardiness	18 people(5 0,0 %)	11 people(1 0,1 %)	18 people(5 0,0 %)	88 people(7 9,8 %)	0	11 people(1 0,1 %)

Thus, it was found that 22.2% of adolescents with SEN and 38.2% of conventionally healthy adolescents experience a sense of alienation, rejection, the feeling of being "outside" the life.

80.6% of adolescents with SEN feel their own helplessness, they do not believe in the possibility of their influence on the course of events, it seems to them that a lot is happening in their lives against their will and they can change nothing, or almost nothing. This may be explained by the lack of life experience, immaturity, related both to the very nature of the disease, and to the peculiarities of upbringing of a adolescents with special education needs. Perhaps, this may be due to the fact that presence in a peer environment with similar learning problems in a special school develops in the child the skills that do not fully contribute to his socialization and adaptation in society, perhaps being a prerequisite for the formation in the future of a learned helplessness as a strategy of interaction with society. In the sub-sample of conventionally healthy adolescents low level constitutes only 12.7%.

The main objective of the study was to identify the differences in the components of hardiness among adolescents with SEN and conventionally healthy adolescents. The analysis of reliability of the differences was conducted with the help of calculation of nonparametric Mann-Whitney U-criterion (refer to Table 3).

**Table 3.** The results of the comparative analysis of sub-samples of adolescents with SEN and conventionally healthy adolescents (N=146)

Indicator	Value of U-criterion	Level of significance*	Average rank	
			SEN	CH
Commitment	1766,500	0,332	79,43	71,56
Control	307,500	0,000	27,04	88,70
Challenge	1134,000	0,000	50,00	81,19
Common level of hardiness	862,000	0,000	42,44	83,66

Note: Correction of the levels of significance was performed by the Bonferroni method.

By commitment indicator significant differences were not found, therefore, adolescents with SEN and conventionally healthy adolescents are focused on their

activity and get pleasure from it, they are mostly to the average degree involved in what is happening and find interesting sides in life.

The remaining components of hardiness are significantly lower in the subsample of adolescents with SEN as compared to conventionally healthy adolescents. Consequently young people with SEN to a greater degree feel their own helplessness, conviction that fight can not affect the outcome of what is happening, conviction is not inherent in them that they can independently choose their own activities, their own way.

Challenge is also significantly lower in the group of adolescents with SEN. They do not believe that everything that happens to them contributes to their development. Adolescents with SEN demonstrate a lower level of the ability to learn from their mistakes and perceive their life experience, whether positive or negative, as a source of knowledge and a basis for improving the behavior and activity. They are less willing to act in the absence of reliable guarantees of success, at their own risk, considering preferable for themselves the desire for simple comfort and security. In general, for them the idea of development through active acquisition of knowledge from new, unfamiliar situations, situations of uncertainty is less acceptable.

The overall level of hardiness is also lower in teenagers with SEN, so they are more vulnerable to feelings of stress and depression, are less ready to confront them, to be proactive and flexible in difficult situations. It is likely that in the stressful situation, they are more inclined to passivity and avoidance.

### ***Correlation of components of hardiness in subsamples of adolescents with SEN and conventionally healthy adolescents***

The structure of hardiness is studied by identifying the relationship of components of hardiness. The method of studying the relationship was the calculation of the coefficient of Spearman's rank correlation. The results of correlation analysis in subsamples of adolescents with SEN are presented in Table 4, of conventionally healthy adolescents - in Table 5.

**Table 4.** The results of correlation analysis in subsample of adolescents with SEN (N=36)

	General level of hardiness	Commitment	Control
Commitment	0,905**		
Control	0,667**	0,434	
Challenge	-0,045	-0,192	-0,120

Note: \*\* -significant level (p) ≤ 0,000. Correction of the levels of significance was performed by the Bonferroni method.

Only the components of commitment and control are correlated with the general level of hardiness, while challenge shows the lack of relationship (refer to Table 4). Also, all components of hardiness are not linked with each other.

In contrast, in the subsample of conventionally healthy adolescents all components are interconnected, as well as linked with the general level of hardiness (refer to Table 5).

**Table 5.** The results of correlation analysis in a control sample -subsample of conventionally healthy adolescents (N=110)

	General level of	Commitment	Control
--	------------------	------------	---------



	hardiness		
Commitment	0,827**		
Control	0,826**	0,509**	
Challenge	0,592**	0,324**	0,399**

Note: \*\* - significant level ( $p \leq 0,000$ ). Correction of the levels of significance was performed by the Bonferroni method.

Thus, from the study of the relationship of components, we found differences in the structure of hardiness in the subsamples. The results show the deformation of the structure of hardiness in adolescents with SEN, in contrast to the subsample of conventionally healthy adolescents, where the structure of hardiness is harmonious.

## Discussions

The analysis of research has shown that the study of hardiness of adolescents with SEN had not previously been carried out. There is also a shortage of research of hardiness of conventionally healthy adolescents (Shvareva, 2012; Petrosyants, 2011; Fominova, 2012). The most important aspect of the study of the phenomenon, reflecting its relevance lies in the fact that the components of hardiness are developed in the childhood and partly in adolescence (Leontiev & Rasskazova, 2006; Maddi, 2006).

Conducting this study allowed us to obtain new results on the specifics of phenomenology and structure of hardiness of adolescents with SEN as compared to their conventionally healthy peers.

The data on low rates of expression of the components of hardiness agree with the results obtained in samples of adolescents (Odintsova, 2016), as well as in samples of students with SEN (Shchetinina, 2015; Leontiev, Alexandrova & Lebedeva, 2011; Hystad et al., 2009; Kalinina et al., 2016; Kirilova & Vlasova, 2016; Vlasova, Kirilova & Curteva, 2016). Perhaps this can be attributed to lack of clarity in life prospects and strategy of delay of the semantical choice (Shchipanova et al., 2016). Also, it may indicate the formation of prerequisites learned helplessness adolescents with SEN (Seligman, 1975). In general hardiness as an actual personal resource needed for the successful confrontation of the individual to stressful situations – for adolescents with SEN such situations constitute the major part of their vital activity—is insufficiently formed.

The obtained results showing the absence of high levels of expression of the components of hardiness and deformation of the structure of the phenomenon are consistent with the hypothesis of L.S. Vygotsky (1934) about the failure of conditions of a correctional school to prepare young people with SEN for the conditions of real life. It is also correlated with the assumption of D.A. Leontiev & Ye.I. Rasskazova (2006) that for the development of such component of hardiness as "challenge" wealth of experience, the variability and heterogeneity of the environment are important.

Thus, in our study reliable differences in the levels of expression and structure of hardiness among adolescents with SEN and conventionally healthy adolescents are revealed. In general, hardiness is more formed in conventionally healthy adolescents. Adolescents with SEN are less resistant to stress, in a less degree are prepared to act actively and flexibly in a difficult situation.

## Conclusion

The results of the research showed in adolescents with SEN the presence of insufficient ability to resist the pressure of stressful circumstances and prevent the development of symptoms of physical or psychological maladjustment. Therefore, the development of



the technologies of psychological support of adolescents with SEN during the period of study in an educational institution both special and secondary when the foundations of personal identity are laid, becomes significant. Based on these data, we are designing psychology-pedagogical programs of the development of components of hardiness of adolescents with SEN (the program is currently in the process of approbation). Their implementation will allow to optimize the process of adaptation and socialization of adolescents, and also perform as a preventive maintenance factor in the development of learned helplessness.

The research has opened some new theoretical and practical questions and problems and showed prospects of further study of phenomenology and the structure of hardiness of people with SEN.

### Disclosure statement

No potential conflict of interest was reported by the authors.

### Notes on contributors

**Dina Ye. Shchipanova** is PhD of Psychology, associate Professor of Department of Psychology of Education and Professional Development, coordinator of research projects of the Institute of Psychological and Pedagogical Education of the Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

**Nataliya G. Tserkovnikova** is PhD of Psychology, associate Professor of Department of Psychology of Education and Professional Development of the Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

**Bella A. Uskova** is Candidate of Pedagogy, associate professor of Chair of Germanic Philology, Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

**Viktor V. Puzyrev** is associate professor of Chair of Germanic Philology, Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

**Anastasia S. Markova** is student of Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

**Evgenii P. Fomin** is Doctor of Education, Professor of Samara State University of Economics, Samara, Russia.

### References

- Akhmetzyanova, A.I. & Saitgaleeva, G.G. (2016). Education for Parents with Disabled Children: How to Participate in Inclusive Education Support. *IEJME-Mathematics Education, 11(4)*, 859-865.
- Akhmetzyanova, A.I. (2016). The Theoretical Analysis of Views on Anticipatory Function of Mental Reflection Development. *IEJME-Mathematics Education, 11(4)*, 683-694.
- Alekhina, S. V. (2016). Inclusive education: from policy to practice. *Psychological Science and Education, 21(1)*, 136-145.
- Angelova, I. A., Le-van, T. N. & Mantarova, A. I. (2016). Professional development of teachers in the field of inclusive education in school (the experience of Russia and Bulgaria). *The Education and Science Journal, 6*, 168-186.
- European Commission (2010). *The European Disability Strategy 2010-2020*. Direct access: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0636:FIN:en:PDF>
- European Commission (2012). Special Needs Children and Disabled Adults Still Getting a Raw Deal from Education. Says report. *Commission Press Release (July). As of 30 March 2013*. Direct access: <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/12/761&format=HTML&aged=0&language=EN&guiLanguage=en>
- European Commission (2013). Support for children with special educational needs. *Commission policy brief. April 2013: European Commission*. Direct access: [http://europa.eu/epic/studies-reports/docs/eaf\\_policy\\_brief\\_-\\_support\\_for\\_sen\\_children\\_final\\_version.pdf](http://europa.eu/epic/studies-reports/docs/eaf_policy_brief_-_support_for_sen_children_final_version.pdf)
- Fominova, A. N. (2012). *Hardiness of a personality*. Moscow: Prometheus. 152 p.



- Hystad, S. W., Eid, J., Laberg, J. C., Johnsen, B. H. & Bartone, P. T. (2009). Academic stress and health: Exploring the moderating role of personality hardiness. *Scandinavian Journal of Educational Research*, 53(5), 421-429.
- Kalinina, N. V., Kalinin, I. V., Oschepkov, A. A., Salahova, V. B. & Simanovskaja, M. A. (2016). The Use of Social Resources of Inclusive Educational Environment to Cope Difficult Situations by Adolescents. *IEJME-Mathematics Education*, 11(7), 2527-2536.
- Kirilova, G.I. & Vlasova, V.K. (2016). Information Streams of Education Content Integrative Designing at a Federal University. *IEJME-Mathematics Education*, 11(4), 767-778.
- Kuzmin, M. Yu. (2012). *Crisis of identity and its connection with hardiness in students*: PhD Thesis. Saint Petersburg: The Herzen State Pedagogical University of Russia, 191 p.
- Leonenko, N. O. & Novakovski, A. (2015). Ethnopsychological features of hardiness of Russian and Polish students. *Humanitarian Vector*, 1(41), 137-141.
- Leontiev, D. A. & Rasskazova, Ye. I. (2006). *Test of hardiness*. Moscow: Smysl, 63 p.
- Leontiev, D. A., Aleksandrova, L. A. & Lebedeva, A. A. (2011). Specificity of resources and mechanisms of psychological stability of students with SEN in the conditions of inclusive education. *Psychological Science and Education*, 3, 80-92.
- Loginova, M. V. (2010). *Psychological contents of hardiness of students' personality*: PhD Thesis. Moscow: Modern Humanitarian Academy, 186 p.
- Maddi, S. R. & Kobasa, S. C. (1984). *The hardy executive: Health under stress*. Homewood: Dow Jones-Irwin, 131 p.
- Maddi, S. R. (2002). The story of hardiness: Twenty years of theorizing, research and practice. *Consulting Psychology Journal*, 54(3), 175-185.
- Maddi, S. R. (2004). Hardiness: An operationalization of existential courage. *Journal of Humanistic Psychology*, 44(3), 279-298.
- Maddi, S. R. (2006). Hardiness: The courage to grow from stresses. *Journal of Positive Psychology*, 1(3), 160-168.
- Nalivaiko, T. V. (2006). *The study of hardiness and its links with the properties of the individual*: PhD Thesis. Yaroslavl: P.G. Demidov Yaroslavl State University, 225 p.
- Odintsova, M. A. (2016). Stressovercoming behavior of senior students with a different level of hardiness. *News of Saratov University. New. ser. Series Philosophy. Psychology. Pedagogic*, 16(2), 191-197.
- Petrosyants, V. R. (2011). *Psychological characteristic of senior students, participants of bullying in the educational environment and their hardiness*: PhD Thesis. Saint Petersburg: The Herzen State Pedagogical University of Russia, 210 p.
- Seligman, M. (1975). *Helplessness: On Depression, Development, and Death*. San Francisco: W.H. Freeman, 250 p.
- Shchetinina, Ye. B. (2015). Hardiness of students with special educational needs as a factor of successful social psychological adaptation to the environment of a higher educational. *News of Caratov University. New ser. Series Akmeology of Education. Psychology of development*. 4(16), 306-309.
- Shchipanova, D. Y., Lebedeva, E. V., Sukhinin, P. V. & Valieva, E. N. (2016). Typology of Strategies of Personality Meaning-Making During Professional Education. *International Journal of Environmental and Science Education*, 11(14), 6999-7015.
- Shvareva, Ye. V. (2012). *Psychological characteristics of image of death in senior students with different levels of hardiness*: PhD Thesis. Ekaterinburg: Ural State Pedagogical University, 177 p.
- Stetsishin, R. I. (2008). *Personal and psychological resources of resilience: a case study of the individual clinician*: PhD Thesis. Krasnodar: Kuban State University, 177 p.
- UNESCO (2012). *The Salamanca Statement on Principles, Policy and Practice in Special Needs Education*. Direct access: [http://www.unesco.org/education/pdf/SALAMA\\_E.PDF](http://www.unesco.org/education/pdf/SALAMA_E.PDF)
- Vanakova, G. V. (2012). Hardiness as a conscious choice of contemporary youth. *Public Education*, 1, 234-239.
- Vlasova, V.K., Kirilova, G.I. & Curteva, O.V. (2016). Matrix Classification of Information Environment Algorithms Application in the Educational Process. *IEJME-Mathematics Education*, 11(1), 165-171
- Volobueva, N. M. (2012). *Psychological culture as a condition for the development of hardiness of students*: PhD Thesis. Belgorod: Belgorod State Research University, 186 p.
- Volodina, T. V. (2014). *Psychological pedagogical model of the development of hardiness of a teacher*: PhD Thesis. Samara: Volga State Social-Humanity Academy, 206 p.
- Vygotsky, L. S. (1934). *Thinking and speaking*. Direct access: <http://profilib.com/chtenie/102194/lev-vygotskiy-myshlenie-i-rech-103.php>