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Научная статья

Age-specific Characteristics of Students' Adaptation Potential in the Context of a Pandemic

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Abstract. The paper proves the relevance of studying the specific features of the adaptation potential of students of different ages under recurrent periods of forced distance learning during the second wave of the pandemic in October-December 2021. The study aims to investigate age-specific features of students' adaptation potential in the context of distance education during the pandemic. The research objectives are to study the specific features of students' adaptation potential, identify the structural elements of adaptation potential, and determine their relationships in students in different age groups.

Materials and methods. Sixty seven students (aged 18 to 24) ($\text{Mean} \pm \text{SD} = 20.7 \pm 1.8$) took part in the surveys. Diagnostic material included vitality test by S. Muddy; the Young Schema Questionnaire "YSQ-S3R"; questionnaire "Ways of Coping Behavior" (WSQ) by Lazarus; and clinical questionnaire for the detection and evaluation of neurotic conditions (by K.K. Yakhin, and D.M. Mendelevich). Statistical data was processed using IBM SPSS Statistics 27. The methods of mathematical statistics employed in the research were Pearson's correlation coefficient; parametric Student's t-test, and Mann-Whitney U-test for independent samples.

Research results. Correlation analysis has revealed the presence of strong inverse correlations between resilience and maladaptive schemas ("vulnerability" and "distrust", "submission", "failure", "rigid standards", "dependence/helplessness" and "defectiveness"), neurotic states and coping strategies. As a result, two opposite trends in adaptation to the pandemic have been identified for various age groups. The scales of Early Maladaptive Schemas (EMS) and coping strategies have shown numerous positive correlations, with the exception of the strategic decision planning, which has negative correlations with some schemas found in the sample.

Conclusion. The EMS is viewed as a manifestation of psychological rigidity, which reduces the adaptive potential, whereas the absence of pronounced maladaptive schemas increases the adaptive potential. Thus, a conclusion can be made about the evolution of adaptive capabilities in an individual at different stages of the adolescence: with age, the indicators of resilience go up, whereas the EMS manifestations go down. At different ages, the adaptive potential is shaped through a variety of mechanisms: in early adolescence, psychological flexibility (ability to adapt) manifests itself in sensitization, i.e., increased sensitivity to environmental influences; at an older age, the tendency to neuroticism weakens, and the tendency to flexible cognitive attitudes and flexible behavioral responses to changing environmental conditions intensifies.

Keywords: *resilience, maladaptive schemas, coping strategies, adaptive potential, students, age group, the second wave of the COVID-19 pandemic, distance learning*

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**Возрастные особенности адаптационного потенциала студентов
в условиях пандемии**

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Аннотация. *Автором обосновывается актуальность изучения особенностей адаптационного потенциала студентов разного возраста в условиях повторяющихся периодов вынужденного дистанта во время второй волны пандемии в октябре – декабре 2021 года. Цель исследования: изучение возрастных особенностей адаптационного потенциала студентов в условиях дистанта в период пандемии. Задачи исследования: изучить особенности адаптационного потенциала студентов; выявить структурные элементы адаптационного потенциала и определить их взаимосвязи у студентов в разных возрастных группах.*

Материалы и методы. *Приняли участие студенты в возрасте от 18 до 24 лет ($Mean \pm SD = 20,7 \pm 1,8$) в количестве 67 человек. Диагностический материал: тест жизнестойкости С. Мадди; схемный опросник Янга «YSQ-S3R»; опросник «Способы совладающего поведения» (WSQ) Лазаруса; клинический опросник для выявления и оценки невротических состояний (К. К. Яхина, Д. М. Менделевича). Статистическая обработка данных проводилась в программе SPSS Statistics 27 (IBM). Методы математической статистики: коэффициент корреляции Пирсона; параметрический *t*-критерий Стьюдента и *U*-критерия Манна-Уитни для независимых выборок.*

Результаты исследования. *Корреляционный анализ выявил наличие сильных обратных корреляций жизнестойкости с дезадаптивными схемами «уязвимость» и «недоверие», «покорность», «неуспешность», «жесткие стандарты», «зависимость/беспомощность» и «дефективность», невротическими состояниями, копинг-стратегиями. В результате были определены две противоположные адаптационные тенденции к условиям пандемии в разных возрастных группах. Шкалы РДС и копинг-стратегии имеют многочисленные положительные связи за исключением стратегии «планирование решения», которая имеет отрицательные связи с некоторыми обнаруженными в выборке схемами.*

Заключение. *Автор рассматривает РДС как проявление психологической ригидности, снижающее адаптивный потенциал; отсутствие выраженных дезадаптивных схем – повышает адаптационный потенциал. В заключение делается вывод о наличии положительной возрастной динамики в развитии адаптивных возможностей личности: с возрастом повышаются показатели жизнестойкости, снижаются*

проявления РДС. В разных возрастах адаптационный потенциал формируется за счет различных механизмов: в ранней юности психологическая гибкость (способность адаптироваться) проявляется в сенсбилизации, повышенной чувствительности к средовому воздействию; в более старшем возрасте тенденция к невротизации ослабевает, усиливается тенденция к формированию гибких когнитивных установок, гибких поведенческих реакций на изменяющиеся условия среды.

Ключевые слова: *жизнестойкость, дезадаптивные схемы, стратегии совладания, адаптационный потенциал, студенты, возрастная группа, вторая волна пандемии COVID-19, дистант*

Introduction

The COVID-19 pandemic has changed many areas of human activity and brought massive psychological problems. The population's response to the pandemic has played an important role in the emergence and wide spread of adjustment disorders [1]. Researchers worldwide point to a growing number of anxiety factors and changes in people's habitual behavior [2; 3]. Even more stressful are unplanned, repeated periods of forced distance learning for students, representing a situation of uncertainty associated with increased levels of anxiety and depression, directly and adversely affecting a person's general well-being. Periods of self-isolation in a pandemic situation were associated with a significantly increased level of stress, anxiety, depression – internal conditions that directly and adversely affect the general well-being of a person [4; 5]. For example, a study of emotional exhaustion in Chilean students during the pandemic has found that 15 % of students had serious mental health problems, moderate depression increased from 17.7 % to 20.7 %, severe depression rose by 5.2 %, severe anxiety grew from 16.7 % to 26.4 % and severe stress increased from 9.4 % to 15.9 % [6]. Emotional exhaustion refers to a situation that negatively affects a person's life and that is characterized by a significant decrease in psychological well-being [2; 7; 8; 9].

The studies address the adaptive capabilities of an individual [10], an adequate attitude to the current situation, even in a pandemic [11] as determinants of psychological well-being. In both evolutionary and psychological terms, an indicator of an individual's well-being is their ability to adapt to environmental conditions [12]. The high adaptive potential is due to the breadth of the range of cognitive, emotional and behavioral responses. With an extensive repertoire of reactions and the ability to switch flexibly between them, it becomes possible to meet the conditions and demands of the current situation as much as possible. Psychological (cognitive and behavioral) flexibility promotes adaptation while psychological (cognitive and behavioral) rigidity reduces a person's adaptive capabilities.

A previous study [13] has found that cognitive flexibility correlates positively with resilience and the tendency to form neurotic defenses, whereas cognitive rigidity has negative associations with measures of resilience. The study has yielded the conclusion that the rigidity of personality traits reduces adaptive potential, while neurotic reactions can be considered as a transient (and successful) mechanism of adaptation to the environment increasing hardness.

During the time of university studies, which covers different periods of adolescence, there is an increased emotional excitability (imbalance, mood swings, anxiety, etc.) [14; 3]. The age crisis is complicated by the specifics of the student's life situation, which requires the preparedness and ability of students to cope with various personal, academic, and social problems [15; 16].

During this period the most relevant behavioral methods to overcome emerging difficulties associated with both external and internal specific requirements are coping strategies. People use these strategies to cope with stress, including the one caused by the pandemic, as well as personal resources that affect the mechanism of the adaptation process, forming bonds with symptom complex of hardiness and neurotic reactions.

Under the influence of similar conditions, various individuals can have similar beliefs and behavioral patterns formed. The author of the scheme therapy Jeffrey Young called them early maladaptive schemas (hereinafter referred to as EMS) [17]. A maladaptive pattern is a symptom complex of rigid beliefs, and related emotional states and behavioral patterns [18]. EMS is a psychological rigidity of the picture of the world and the self, stagnation of adaptive mechanisms, and complexity of fast reorganization in a changing environment. L. N. Sobchik argues that maladaptive mechanisms are based on innate biological and psychophysiological properties that form the basis and conditions for interaction of these properties with the surrounding world [19]. Human behavior is guided by the scheme and is a response to it. The adverse impact of environmental factors on the personality interferes with the satisfaction of basic emotional needs, generates stable self-expanding cognitive structures that reflect the entrenched negative experience and hinder further adaptation. According to E.N. Bogdanov, early maladaptive schemas can influence the specifics of a person's experiences and his/her behavior in difficult life situations. The stronger a person expresses various maladaptive schemes, the lower his/her level of adaptation [20].

We deem it to be relevant to study the adaptation potential of students of different ages in the current context of pandemic, which is determined by the importance of preserving and strengthening the mental health of young people, and the need to develop modern approaches to the prevention of mental maladaptation in university students.

Materials and Methods

In order to explore age-specific features of students' adaptation potential under repeated periods of forced distance learning during the second wave of the pandemic, a study was conducted in different age groups on the basis of TSPU students at the age of 18 to 24. The sample size is 67 students (59 girls and 8 boys). The students participating in the study were divided into two groups according to the age criterion. The average age of the subjects is 20.7 ± 1.8 years, and the median age is 21 years. The criterion for dividing the subjects into two groups is the median value of age: group 1 - age ≤ 21 years and group 2 - age 22+. Based on the division of the subjects into two age groups, the differences between them have been analyzed in terms of the studied indicators.

The research objectives are to study the specific features of students' adaptation potential, identify the structural elements of adaptation potential, and determine their relationships in students in different age groups. We hypothesized that the adaptive capacity of students of different ages is shaped by different mechanisms and, in a pandemic, manifests itself in opposite adaptive tendencies.

The diagnostic material used in the research included vitality test by S. Muddy [21]; the Young Schema Questionnaire "YSQ-S3R" adapted by P.M. Kasyanika and E.V. Romanova; the questionnaire "Ways of Coping Behavior" (WSQ) by Lazarus [22]; and the clinical questionnaire for the detection and evaluation of neurotic conditions (by K. K. Yakhin, D. M. Mendelevich). Statistical data were processed using IBM SPSS Statistics 27. Descriptive statistics methods were used, the data were presented as mean and standard deviation ($\text{Mean} \pm \text{SD}$), and quartile measurement ($\text{Me} [Q1; Q3]$). The asymmetry coefficient (As) and

excess kurtosis (Ek) were also calculated to assess the normality of the distribution. Pearson's correlation coefficient (r) was used to establish the strength of the relationship between the studied parameters. The parametric Student's t-test and the Mann-Whitney U test for independent samples were employed as a method for comparing quantitative indicators.

Research Results

The primary descriptive analysis of the entire sample (n=67) has been carried out without dividing into groups to obtain comprehensive information about the data of the empirical study, the distribution and homogeneity of the data, the presence of errors and outliers, and the possibility of using parametric analysis methods.

The obtained data were analyzed using the S. Muddy's vitality test based on a parametric test (Student's t-test) and a non-parametric test (Mann-Whitney U test). The test has shown that there are differences in the indices of the structural components of hardiness (p-value <0.001) between the two experimental groups (<= 21 and 22+)). The average score on the "hardiness" scale in both groups is in the range of the average value, the median indicators are also close to the average value in both groups. Thus, the adaptive potential of the sample during the pandemic can be generally characterized as quite high.

The study has found the differences in hardiness indicators at different stages of adolescence (Pearson's coefficient). Structural components of hardiness (involvement and risk-taking) in different age groups have different levels of manifestation: involvement and age have a positive relationship ($r=0.428$, $p<0.001$), risk acceptance and student age have a weak positive relationship ($r=0.271$, $p<0.001$); the internal consistency of the involvement and risk-taking scales has also been revealed ($r=0.885$, $p<0.001$).

Comparison of the distribution for the two groups of data on the hardiness scale suggests that the range in which the bulk of the 22+ student group is concentrated is between 38.0 and 86.0 (with Me=68), whereas the bulk of the <=21 student group falls within the range of 45.0 to 86.0 (with Me=63). A smaller degree of variation can also be observed in the 22+ group. Using the regression analysis, we have found that there is a slight decrease in the indicators of hardiness for the students at the age of 18 to 21, but the students at the age of 22+ show a rise in hardiness followed by its further gradual increase.

To determine the dominant neurotic states according to the clinical questionnaire by K. K. Yakhin, D. M. Mendelevich, we have undertaken a descriptive analysis of the results for the entire sample (n=67) without division into groups (Table 1).

Table 1

Descriptive analysis of the results of the sample (n=67) without division into groups according to the clinical questionnaire by K.K. Yakhin, D.M. Mendelevich

Scale name	Mean±SD	Me[Q1; Q3]	p-value of the t-crite- rion	p-value of the U-criterion
Anxiety	1.32±4.25	1.52 [-1.33; 4.68]	<0.001	<0.001
Neurotic depression	-0.09±4.92	1.16 [-3.1; 3.41]	<0.001	<0.001
Asthenia	2.44±4.33	3.07 [-0.06; 5.45]	<0.001	<0.001
Conversion disorders	0.89±4.49	2.15 [-2.92; 4.33]	<0.001	<0.001

Obsessive-phobic disorders	-0.28±3.96	-0.22[-2.29; 2.02]	<0.001	<0.001
Autonomic disorders	2.13±7.58	3.08 [-3.5; 8.52]	<0.001	<0.001

Two dominant scales “neurotic depression” and “obsessive-phobic disorders” have been identified according to the values of the mean and median indicators. Comparison of the distribution of the two age groups on the highlighted scales (Fig. 1) shows that the bulk of the 22+ student group is concentrated on both scales within the “boxes” of -2.52 to 4.75, while the bulk of the ≤ 21 student group is located within the range of -11.25 to 6.72. The degree of dispersion in the 22+ group is less than that in the ≤ 21 group. Thus, the ≤ 21 student group is more likely to show neurotic reactions and to a greater extent at the age of 19-20.

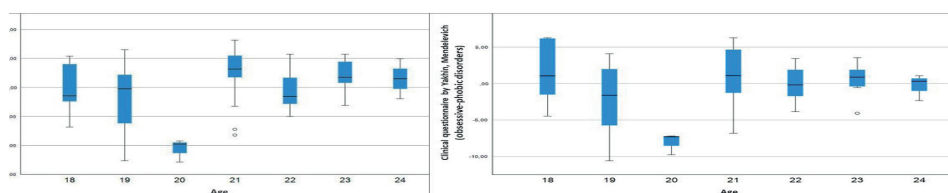


Fig. 1. The severity of the indicators in students in different age groups for the “neurotic depression” and “obsessive-phobic disorder” scales

Although the tendency to develop neurotic reactions falls under the clinical diagnosis of neurosis, it is worth considering the positive correlation of these reactions with hardiness parameters and the negative correlation with EMS. Consequently, neurotic reactions can be viewed as a transient mechanism of adaptation to external conditions, which are smoothed away with age.

Based on the enlarged categories (domains) of maladaptive schemas identified by Young [23], we have identified four significant schemas in the respondents: breakdown of ties and rejection (BTR); impaired autonomy (IA); focus on others (F / O) (impairment of the need for self-esteem and self-acceptance) and hypervigilance and inhibitions (HI) (impairment of the need to freely express one’s needs and emotions).

The most pronounced maladaptive categories are “breakdown of ties and rejection” (BTR) and “hypervigilance and inhibitions” (HI). In these categories, 14 statistically significant correlations between individual schemas have been found (with coefficients $r=0.271\div0.709$, at $p<0.01$ and $p<0.05$). These correlations indicate the internal consistency of the test and the totality of the maladaptive mentality: maladaptive attitudes in one area (domains) do not exist in isolation from the others.

It has been established that the greatest manifestation of maladaptive schemas falls on the age of 19-20 and significantly exceeds the median values; at the age of 21-22, there is an “equalization”, and the 23-24-year olds shows a decrease in the severity of EMS.

The age dynamics of EMS is consistent with the data on the dynamics of hardiness and

the dynamics of neurotic reactions, which suggests that the adaptive capabilities of students increase with age.

Correlation analysis (r-Pearson's coefficient) shows numerous connections between the EMS scales of hardiness, neurotic states, and coping strategies (Table 2).

Table 2

Correlations between indicators of hardiness, maladaptive domains, coping strategies and neurotic states

Maladaptive domains		Hardiness parameters				Neurotic states	
		<i>Iv</i>	<i>C</i>	<i>Ra</i>	<i>Hd</i>	<i>Nd</i>	<i>OPs</i>
BTR	<i>S2</i>		-,519**			-,515**	-,702**
	<i>S7</i>	-,575**	-,652**	-,595**	-,326*	-,638**	-,620**
	<i>S10</i>					-,682**	-,524**
IA	<i>S4</i>	-,538**	-,638**	-,520**		-,623**	-,491**
	<i>S6</i>	-,470**	-,606**	-,527**		-,571**	-,605**
	<i>S5</i>				-,575**		-,367*
F/O	<i>S3</i>	-,475**	-,661**	-,543**	-,425**	-,620**	-,709**
HI	<i>S8</i>		-,529**		-,530**	-,565**	-,693**
	<i>S9</i>	-,369*	-,649**	-,376*	-,348*	-,602**	-,454**
	<i>S2</i>	-,492**	-,690**	-,589**	-,385**	-,727**	-,586**
C o p i n g strategies	<i>Sc</i>		-,435**	-,353*	-,375*	-,624**	-,518**
	<i>Ar</i>		-,375*			-,350*	-,357*
	<i>F/A</i>		-,564**	-,357*	-,447**	-,582**	-,659**
	<i>Pr</i>			,336*			
Neurotic states	<i>Nd</i>	,448**	,642**	,567**	,404**		
	<i>OPs</i>	,388**	,600**	,522**	,448**		

Note 1. The table uses the following abbreviations: BTR – breakdown of ties and rejection; IA – impaired autonomy; F/O – focus on others; HI – hypervigilance and inhibitions; S1 – rigid standards; S2 – distrust; S3 – vulnerability; S4 – suppression of emotions; S5 – submission; S6 – negativism / pessimism; S7 – alienation; S8 – failure; S9 – dependence / helplessness; S10 – defectiveness; Sc – self-control; Ar – acceptance of responsibility; F/A – flight/avoidance; Pr – positive revaluation; Nd – neurotic depression; OPs – obsessive-phobic syndrome; Iv – involvement; C – control; Ra – risk acceptance; Hd – hardiness.

Note 1. * Correlation is significant at the level of 0.05; ** Correlation is significant at the 0.01 level.

The schemes, strategies and states dominating the sample have been considered. EMS, as well as coping strategies, have strong negative relationships with hardiness. At the same time, neurotic states correlating positively with hardiness and negatively with EMS and coping, obviously have a positive effect on the adaptation process.

In addition, the EMS scales and coping strategies have numerous positive relationships ($p < 0.01$), with the exception of the “decision planning” strategy, which has negative relationships with some schemas found in the sample ($p < 0.01$; $p < 0.05$). The connections shown give grounds to consider EMS and coping as manifestations of psychological rigidity, which reduce the potential of an individual's hardiness. In other words, it is possible to argue that the presence of strict, rigid rules and attitudes that determine the behavior of an individual in a stressful situation reduces adaptive capabilities.

The author declares no conflict of interest.

Conclusion

The relevance of the research into the adaptation potential in students of different ages is due to the issues of preserving and strengthening the mental health of young people; the objectives to assess the adaptive capacity of the individual and differentiate adaptation disorders during adolescence; and the need to develop modern approaches to the prevention of mental maladaptation in university students.

We view adaptive capacity as an integral concept, the constituent elements of which are:

1) resilience as an “internal key resource” and as an individual’s ability to withstand a stressful situation, maintaining internal balance;

2) experience of coping behavior as a set of actions aimed at finding, solving, overcoming and analyzing life situations, providing cognitive flexibility as an ability to assess objectively and act flexibly accordingly;

3) maladaptive schemas as a symptom complex of rigid beliefs causing cognitive rigidity as an inability to change the way of response when the situation changes and fixation of the person on ineffective strategies in a changed environment.

The study has established that adaptation potential of students increases with age and depends on age-specific manifestations of resilience and neurotic reactions. Neurotic reactions being temporary specific ways of coping with stress provide efficiency of the choice of own adaptive “niche” and act as transient states, which are characteristic of early adolescence to a greater extent.

Psychological flexibility (ability to adapt) in early adolescence is provided by increased sensitivity and a tendency to neurotic defense mechanisms. At an older age, the tendency to neuroticization weakens, whereas the tendency to form flexible cognitive attitudes, flexible behavioral reactions to a changing environment increases.

This study suggests that those with cognitive and behavioral flexibility and those with cognitive and behavioral rigidity tend to exhibit opposite adaptation tendencies; the adaptation process is more successful in those with cognitive and behavioral flexibility who do not have marked EMS; the adaptation process varies for different stages of adolescence.

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