Personalized psychogical and physiological health based approach to access and control of adaptation of students – orphans to university conditions

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The paper presents the results of studies of phenotypic demonstration of adaptation of orphan students to the educational process at the university. The study was based on analysis of the basic parameters of somatic and psychological status of students from different social groups and examples of findings of the survey and recommendations were given for improvement. Clear differences were identified in somatic, psychogical and physiological health parameters of students - orphans. In conclusion it is recommended that Individual program approach can be effective for this category of students for the prevention of disturbance of adaptation to the conditions of the University.

Keywords: adaptation, students, psychogical, somatic, social groups

INTRODUCTION

Students have a more mental stress than that of young members of other groups. The examination sessions need the maximum mobilization of all mechanisms of adaptation due to strong emotional stress influence. Some students come from another city, it leads to a complete change in their lifestyle and it requires independent solutions to everyday problems (Cannon TD et al., 2008; Aghajanian N.A., Notova S.V., 2009)

Among the most serious problems of orphans and children are left without parental care, they isolated delay or specificity of development of emotional and volitional sphere; the lack of experience of family socialization; the lack or insufficiency of experience of communication with environment and other people; consumer attitude to material possessions and people and the inadequacy of self-esteem, isolation, loneliness. (Muller J.L. et al., 2003; Davydova N.O. et al., 2011; Mark TL. Et al., 2003).

Knowledge about the features of their adaptation becomes necessary in connection with the active implementation in practice of higher education institutions of an inclusive approach to the education of the handicapped and orphans who are in difficult life situation.

MATERIALS AND METHODS

The study of the level of mental and physical health of orphans and their adaptation to the educational process.

The study consisted of several stages:

Was designated the groups of orphan (148 students from different courses and faculties of the OSU);

It was selected the control group by type of case - control for students are not orphans (148 students from different courses and faculties of the OSU);

In both groups was conducted the study and evaluation of the cardiovascular and respiratory systems, their regulation of the autonomic

nervous system, adaptation possibilities of organism of students in general; a study of the level of mental health, propensity for psychosomatic and socially dependent diseases and auto-destructive student behavior was conducted.

Statistical processing and comparative analysis of the obtained research dates in the study and control group was calculated

Development of recommendations for orphan in the main areas of a healthy lifestyle based dates was got.

Psychological testing was conducted on hardware – software complex (HSC) of the company "Neurosoft" using 7 methods (Bass- Durk's questionnaire in adaptation by A. K. Osickov, Luscher Color Test, the technique of "Deviant behavior", the questionnaire "Disadaptive violations" (DAN), test of healthy behavior, life events scale (G. E. Anderson), rapid diagnosis of neuroses (Hake and Hess)) (The World Health Report 2004).

The study of the functional state and regulation of the cardiovascular, respiratory and autonomic system were conducted on the "Poly-spectrum" ("Neurosoft") with the definition of heart rhythm variability (HRV), the variability of the duration of the respiratory cycle (VDC) with orthostatic breakdown and cross – analysis in operational or short-term mode. The electrocardiogram recording was performed in the supine position, during quiet breathing in three standard leads and the imposition of the breath sensor. Before the beginning of the study the period of peaceful adaptation to ambient conditions was fixed during from 5 to 10 minutes. Background recording went on 180 seconds, the recording is active orthostatic test for 90 seconds (Baranov A.A. et al., 2010)

In accordance with the technique of cross - analysis of HRV (heart rhytm variability) + VDC (variability in the duration of the respiratory cycle) that is implemented in agroindustrial complex of the company Neurosoft, the duration of the duration of the respiratory cycle as a histogram superimposed imposes on the spectrogram HRV. In this case, compares the synchronism of oscillations of the breathing cycle and the parasympathetic HF-component of HRV.

This technique allows the examination: 1. to assess the synchronisation of the respiratory center and the centers of the vagus nerve, in other words, the synchrony of the respiratory and cardiovascular systems; 2. to clarify the boundary between high and low frequency ranges of heart rate and, therefore, more accurately determine

spectral power of high frequency bands and low-frequency oscillations (HF); 3. to identify the position of the peak maximum power of a high frequency component (HF) of the spectrum with respect to the mode of the histogram of the duration of the respiratory cycle, which allows to diagnose desynchronization in the respiratory and vasomotor centers of the ANS and is one of the signs of immaturity neurohumoral regulation; 4. to note the change of breathing pattern (histogram VDC polymodal type), especially in combination with increased power of low frequency component (LF) of HRV, which reflects the state of emotional stress. In this case, the violations of the breathing pattern are the basis for the purpose of the respiratory training in the complex therapy.

Spirometry was performed on AIC "Spiro-Spectrum" of "Neurosoft" using the tests "the Calm breathing/VC" (it measures the lung capacity, reserve volume of inhalation and tidal volume), and "Forced exhalation" (25 parameters of respiration are volume, speed, time and relative) and "Maximal voluntary ventilation" (it defines the maximum volume of lung ventilation in terms of per minute and respiratory rate). In this study were taken into account circadian rhythms, with a primary holding of samples in the first half of the day. The measurements were performed at vertical position of the chest and in the sitting position (Davydova N.O. et al., 2014). For evaluation of bronchial patency the curve flow-volume used the following performance, which were divided into groups:

pulmonary volumes: FVCOL - forced vital capacity of lungs, FEV1 - forced expiratory volume in the first second;

speed performance: PSV - peak flow, MMEF25, MOS, MOS - maximum volumetric flow rate curve at points corresponding to 25%, 50%, 75% FVC, SOS-75 - the mean value of the maximum velocity in the range of 25% to 75% FVC;

relative indicators: FEV1/FVC;

temporary indicators: T_{ex} - the time of exhale FVC (Davydova N.O. et al., 2013).

For the calculation of due values in the software "Spiro-Spectrum" are used the systems of due values (SDV): home system "Clemente" and foreign systems "Knudson" and ECCS (European Community for Steel and Coal – European society of coal and steel) (Davydova N.O., 2012).

All dates were statistically processed by methods of variation statistics using of software "Statistica 10.0". Control of normality of quantitative traits according to the Shapiro-Wilk test, Kolmogorov-

Smirnov/Lillefors and D'agostino kurtosis was rejected, in this regard the quantitative traits are not normally distributed. For comparison of two independent samples was used non-parametric U-criterion Mann-Whitney (Mann-Whitney U test) and the Kolmogorov-Smirnov test and the series test of Wald-Wolfowitz (Davydova N.O., 2013).

RESULTS

The results of spectral analysis of HRV in groups of orphans and the control groups are presented in table 1.

The reaction of AutoProbe in both groups was adaptive, it was reflected by the rise in percentage of low-frequency component. Thus, when, the results of the spectral analysis are presented on the diagrams of figures 1-4 and table 1, we pay attention to the fact that in groups of orphans (young men) were dominated by component (%)HF in spectral power of HRV regulation, largely in the background sample with a high level of significance (p=0,033). The contribution of the mixed component (%) LF, with a predominance of the sympathetic system, also it noted in groups of orphans (young men) in the orthostatic test. Outside vegetative (%) VLF impact on the regulation of heart rhythm, has had more the students are orphans, with high values of significance level, both in background and orthostatic samples (p_{bs}=0,017 and p_{ap} =0,005 respectively).

The groups of orphans (girls) has substantial differences in the spectral analysis of HRV samples then groups of girls are not orphans. The results of the orphan girls in AutoProbe and the girls are not orphans in the background sample were higher, it shows which indicates a greater role in the regulation of heart rhythm vegetative component.

Indicators of temporal analysis of HRV were significantly different in both groups and are presented in table 2.

In both groups the coefficient of K30/15 were not significantly different and amounted in group of boys – orphans and not orphans 1,20±0,04 and 1.16±0.031, respectively, in girls of the same groups are 1.13±0.01 and 1,16±0,03. A characteristic feature of the students of both groups was the reducing reaction of the AP, as the value of the coefficient K/Arto was from 1 to 1, 20 (Davydova N.O., 2013).

Comparative analysis of HRV and VRDC shows a lot of peaks of the histogram VRDC, that is indicate about increasing of emotional stress. The lack of full synchronization between the peak of the HF component of HRV and mode of the histogram of VRDC may show the limitation of their neurohumoral regulation.

Complex assessment of HRV parameters allows the measure the result of functional condition. General indicators of the groups with regard to gender differences, are presented in tables 3 and 4.

IVB shows that the correlation between the activity of the parasympathetic and sympathetic divisions of the Higher Nervous System (HNS). Index falls sharply when the parasympathetic activity rise up. When sympathetic influences are increased the opposite shifts will be.

RVI – If this indicator falls, the vegetative balance will go to the parasympathetic side

IARP demonstrates the accordance ratio between activity of sympathetic division of HNS and functioning of the sinoatrial node.

IS demonstrates the degree of centralization of control heart rhythm.

Complex evaluation of the HRV parameters of the functional state showed the difference to a greater extent on the gender aspect than social. During conduct of experiment in groups of young men the values of the IVB, RVI, and IARP changed comparable across groups, with high significance level in the background sample, with the initial large values of the students are orphans. Also it noted the increasing of index of stress in four times in the course of AutoProbe to students-orphans, while in the second group it increased only 2.5 times. The ratio IS2/IS1 in first group of young men is almost two times higher than in the second group. The differences in groups of young girls were less significant. IVR, IARP and IS changed in AutoProbe in both groups, the original level of these parameters was also comparable. The ratio IS2/IS1 in groups of young girls were little distinguishable (p=0,076). Thus, functional parameters of HRV were distinguished as social and gender dimensions.

Main volumetric and high-speed and time characteristics of spirometry for students are presented in tables 5 and 6.

The results of a study of FVD shows that average volumetric characteristics in both groups of young women ranged from 61% to 87% and from 76% to 83% in groups of young men. The decreased in the first group of young men that perhaps is one of the adaptive reactions. Indicators for the evaluation of bronchial disorders are volumetric and speed characteristics of breath. In the first group of young women average values of MVR 25, MVR 75 and VAS 25-75 were

67.%, 71.5 %, 87.2% of due, it indicated about
the worsening of bronchial patency at the level of
medium and small bronchi.

Table1; Spectral analysis of heart rate variability of students, ms^2

Indicator	I group of young men (n=73) M±m		II group of young men (n=73) M±m	
	BS	AP	BS	AP
VLF	1887,35±272,90	1780,05±312,19	1546,91±175,71	1622,41±235,48
LF	3559,80±712,07	1891,53±237,86	1601,93±277,22	1698,00±203,95
HF	5275,58±305,51	1686,89±549,39	2253,23±519,24	2253,23±519,24
LF\HF	1,14±0,09	4,66±0,57	1,22±0,10	4,49±0,36
	I group of girls (n=73) M±m		II group of girls (n=73) M±m	
	BS	ОП	BS	ОП
VLF	1126,03±133,24	950,10±116,31	2108,52±300,60	1280,25±161,84
LF	1682,63±306,93	1604,68±171,22	2694,76±429,79	2426,39±237,49
HF	3008,48±558,85	797,913±141,70	3824,50±666,23	2049,94±481,58
LF\HF	0,85±0,09	4,51±0,52	1,04±0,11	3,11±0,29

Note: BS- background sample; AP - AutoProbe.

Table 2; Time domain analysis of HRV.

Indicator	I group of young men (n=73)M±m		II group of young men (n=73)M±m	
	BS	AP	BS	AP
RRNN	841,36±15,97	666,87±12,16	827,39±14,69	673,26±12,99
SDNN	83,53±7,22	53,88±4,99	64,11±3,98	48,69±3,38
	I group of girls (n=73) M±m		II group of girls (n=73)M±m	
	ФП	ОП	ФП	ОП
RRNN	822,60±13,40	677,45±11,07	765,90±13,27	634,32±8,74
SDNN	66,41±4,57	45,18±2,82	78,07±5,91	57,47±3,79

Table 3; Mean value of HRV in groups of young men, M±m

Indicator	I group of young men (n=73) M±m		II group of young men (n=73) M±m		P
	BS	ES	BS	ES	
HR, bpm	73,22±1,47	92,01±1,62	74,39±1,37	91,63±1,74	bs 0,0008 es 0,08
Moda, s	0,82±0,02	0,68±0,01	0,82±0,01	0,67±0,01	bs 0,07 es 0,026
AM, %	37,96±1,52	51,68±2,45	41,01±1,42	49,45±1,81	bs 0,12 es 0,10
VS, (∆X), s	0,54±0,04	0,26±0,03	0,41±0,02	0,23±0,01	bs 0,01 es 0,03
IVB, c.u.	116,45±13,70	419,35±60,14	146,54±15,21	328,13±37,82	bs 0,003 es 0,14
IARP, c.u.	49,81±2,93	82,64±5,49	53,05±2,63	79,00±4,32	bs 0,003 es 0,14
RVI, c.u.	3,52±0,32	10,79±1,21	4,19±0,34	9,39±0,83	bs 0,025 es 0,16
IS, c.u.	79,61±11,02	365,16±62,00	99,30±12,37	278,44±40,21	bs 0,017 es 0,61
IS2/IS1	9,47±2,41		4,18±0,49		0,001

Note: Mo – moda; AMo – the amplitude of mode; VS, (∆X) – variation scope; IS – index of stress; IVB–
index of vegetative balance; RVI – rhythm vegetative indicator; IARP – indicator of adequate regulation
process.

Table 4 ;Mean value of HRV in groups of young women, M±m

Indicator	I group of young women (n=73) M±m		II group of young women (n=73) M±m		P
	BS	ES	BS	ES	
HR, bpm	75,29±1,21	90,72±1,49	81,97±1,51	97,04±1,27	bs 0,022 es 0,0015
Moda, s	0,82±0,01	0,66±0,01	0,75±0,01	0,63±0,009	bs 0,0033 es 0,05
AM, %	41,76±1,65	48,51±1,58	42,21±1,59	47,31±1,63	bs 0,11 es 0,34
VS, (ΔX), s	0,41±0,03	0,25±0,02	0,61±0,05	0,31±0,02	bs 0,0033 es 0,0023
IVB, c.u.	151,79±15,30	306,58±25,47	114,08±11,54	240,89±27,74	bs 0,039 es 0,0105
IARP, c.u.	53,17±2,73	76,65±3,67	59,68±3,02	77,82±3,48	bs 0,04 es 0,21
RVI, c.u.	4,24±0,33	9,12±0,61	3,32±0,42	7,53±0,67	bs 0,04 es 0,024
IS, c.u.	99,30±11,66	250,03±24,39	81,09±8,73	202,01±24,86	bs 0,24 es 0,031
IS2/IS1	3,83±0,39		3,53±0,52		0,076

Table 5; Basic parameters of the spirometry in groups of young men

Indicators of CFV	I group of young men (n=73)		II group of young men (n=73)		p
	M±m	25-95% CI	M±m	25-95% CI	
Volumetric parameters					
VCOL	4,77 ± 0,21	4,33- 5,21	4,58 ± 0,16	4,24- 4,91	0,008
FVCOL (l)	3,42±0,15	3,12-3,73	3,23±0,13	2,96-3,50	0,023
FEV1 (l)	2,73±0,16	2,40-3,06	3,05±0,11	2,84-3,26	0,009
FEV1/VCOL	82,22±14,19	53,94-110,49	75,76±4,30	67,19-84,33	0,004
FEV1/FVCOL	77,28±2,23	72,82-81,74	95,84±0,99	93,86-97,82	0,001
Volumetric and speed parameters					
MVR 25 (l/sec)	3,86±0,36	3,14-4,58-	5,92±0,31	5,31-6,54	0,08
MVR 75(l/sec)	2,55±0,16	2,21-2,88	4,61±0,20	4,20-5,01	0,11
VAS 25-75	3,19±0,23	2,72-3,66	1,96±0,17	1,61-2,31	0,008
MVR 50	2,15±0,21	1,74-2,56	2,02±0,18	1,66-2,39	0,037
Time parameters					

Note: VCOL–vital capacity of lungs; FVCOL – forced vital capacity of lungs; FEV1 – forced expiratory volume for 1 second; ИТ – Test of Tiffno – the ratio of FEV1 to VCOL; Gensler's Index – the ratio of FEV1 to FVCOL; PROE – peak rate of expiration; MVR 25 – the maximum volumetric rate of FVCOL at 25%; MVR 50 – the maximum volumetric rate of FVCOL at 50%; MVR 75 – the maximum volumetric rate of FVCOL at 75%; VAS 25-75 – volumetric average speed on the site from 25% to 75% of FVCOL; M - medium ; m – standart error; 25-95% CI – confidence interval.

In the second group of young men were decreased in bronchial obstruction at the level of medium bronchi (MVR50 - 81,7 %). The factors which influencing the decline of bronchial patency are the environmental conditions of living in the industrial city and smoking.

The increasing of MVL (17.7 %) and the decreasing in ЧД was observed only in the second group of young men. The dynamics of volumetric parameters in the groups of young men was significant differences by group were based on such parameters, as FEV1/FVCOL and FEV1 with the predominance in the second group, and FEV1/VCOL, and VCOL and FVCOL which were higher in groups of young men orphans. In the first group of young women the volumetric parameters were lower than in the second group of young women and it was a statistically significant for FEV1/VCOL and VCOL (p = 0,0003 and 0.0001, respectively).

In the study for measuring the parameters and forms of aggression were used the questionnaire by A. Bass and A. Dark (in adaptation by A. K. Osnickii). We proceeded from the fact that aggression as a personality trait, and variant of

behavior can be understood in the context of psychological analysis of the motivational sphere of personality. Therefore, this technique has been used with others, the results are presented in tables 7 and 8.

Physical aggression was low in all groups of students. Verbal aggression were high for young women in both groups and average for all young men. Such symptoms as negativism, anger, suspicion and resentment have been expressed in all groups of students and a sense of guilt almost in all groups of orphan students was above average. Index of aggression was significantly higher among students which aren't the orphans, both boys and girls (p=0.01 and p=0,07, respectively). The hostility index did not different for all women and was significantly higher for boys which are not orphans (p=0.17 and p=0.0001 respectively).

On the Anderson's scale in the first group of the young women the stress load level has been equal 461, 76 points, and 448, 97 in the second group. However, the level of stress was high according to the score rating. The same test, the stress load was even higher for young men, than among girls, and in the second group of young men the stress was significantly higher (p=0,0054), than in the first group. The results of the test "Disadaptive violations" were average on all scales, as for boys and for girls, with unreliable differences in groups. The best results on the test "Healthy behavior" showed in groups of girls, especially in the second group with a significant difference on indicators of "Alcohol and drugs" (p=0.003). Twice the worst result was in the first group of young women on indicators of "Food". In the second group of young men the results were significantly worse on such parameters as "Alcohol and drugs" (p=0.0000), "Food" (p=0.0001), "Stress-control" (p=0,0094) And

"Safety" (p=0,0031) for the test "Healthy behavior".

The level of stress load on the ball was high in all groups of students. stress load in groups of boys was higher than among girls, and in the group of boys which aren't orphans stress was significantly higher (p=0,0054). "Disadaptive violations" were average on all scales, as for boys and for girls. The difference between students- orphans and not orphans was not significant. When the lifestyle of students was analyzed the result for test "Healthy behavior" was worse than the results showed groups of girls and boys which was orphans and not orphans.

In the analysis of psychological characteristics of students on the Luscher test, differences appeared accurate, and significant on the social factor (table. 9).

The level of efficiency was reduced in all students, the number of students with high efficiency were significantly higher among orphans. In the analysis of personal balance, contradictory and unstable individuals was much higher among students which are not orphans. Balanced personal qualities were five times more likely to students - orphans. Focused on their problems students are orphans were largely, independent and active individuals were more likely among students not orphans.

All students had no signs of addictive behavior and characteristics of delinquent behavior. Less than 4 % of students in both groups have a low propensity to deviant behavior, Risk of suicidal behavior is comparable statistics with other categories of youth, prone to self-destructive behaviour was recorded less than 2% of students in both groups.

High likelihood of neurosis were more likely among students are not orphans.

Table 6; Main indicators of the spirometry in groups of young women

Indicators of CFV	I group of young women (n=73)		II group of young women (n=73)		p
	M±m	25-95% CI	M±m	25-95% CI	
Volumetric parameters					
VCOL	3,654±0,11	3,43-3,87	4,56±0,16	4,22-4,90	0,0001
FVCOL (I)	2,44±0,08	2,29-2,60	3,25±0,13	2,98-3,52	0,38
FEV1 (I)	2,06±0,08	1,88-2,23	3,06±0,11	2,85-3,27	0,45
FEV1/VCOL	59,18±2,91	53,39-64,97	76,32±4,32	67,71-84,93	0,0003
FEV1/FVCOL	83,46±1,94	79,59-87,33	95,79±1,01	93,78-97,79	0,07
Volumetric and speed parameters					
MVR 25 (l/sec)	2,87±0,21	2,43-3,30	5,96±0,31	5,33-6,58	0,96
MVR 75(l/sec)	2,20±0,11	1,98-2,41	4,58±0,20	4,18-4,99	0,12
VAS 25-75	2,58±0,15	2,27-2,89	1,95±0,17	1,59-2,31	0,0001
MVR 50	1,84±0,14	1,56-2,12	2,01±0,18	1,64-2,38	0,08
Time parameters					
t (sec)	1,39±0,05	1,28-1,51	1,07±0,08	0,89-1,25	0,48

Table 7-The results of neuropsychological testing of young men

Indicator	I group of young men (n=73)		II group of young men (n=73)		P
	M±m	25-95%CI	M±m	25-95%CI	
The questionnaire by A. Bass and A. Dark (in adaptation by A. K. Osnickii)					
Index of aggression	49,87±1,73	46,41-53,32	63,18±2,001	59,19-67,16	0,01
Index of hostility	37,96±1,93	34,09-41,82	49,28±1,76	45,76-52,81	0,0001
«Maladaptive violation»					
Asthenic reaction	7,28±0,75	5,78-8,78	8,05±0,75	6,55-9,54	0,41
Psychotic reaction	11,57±0,41	10,74-12,39	11,76± 0,50	10,76-12,76	0,89
Maladaptive violation	18,81±1,10	16,61-21,01	20,59±1,21	18,18-23,01	0,26
Test of healthy behavior					
Smoking	6,18±0,36	5,45-6,91	1,92±0,37	1,16-2,67	0,000000
Alcohol and drugs	8,25±0,23	7,79-8,72	4,02±0,22	3,57-4,47	0
Food	4±0,27	3,45-4,54	2,54±0,21	2,12-2,96	0,0001
Physical training	5,87±0,32	5,22-6,51	4,07±0,22	3,63-4,51	0,000000
Stress control	7,24±0,22	6,79-7,69	6,44±0,20	6,03-6,85	0,0094
Safety	9,01±0,13	8,73-9,28	7,68±0,29	7,10-8,27	0,0031
The scale of life events (by G.E. Anderson)					
Total	488,72± 43,63	401,82-575,62	500,22± 33,85	432,79-567,64	0,0054

Table 8; The results of neuropsychological examination in groups of young women

Indicator	I group of young women (n=75)		II group of young women (n=75)		P
	M±m	25-95%CI	M±m	25-95%CI	
The questionnaire by A. Bass and A. Dark (in adaptation by A. K. Osnickii)					
Index of aggression	52,48±2,11	48,27-56,69	56,19±1,58	53,02-59,35	0,07
Index of hostility	43,43±2,03	39,36-47,49	43,42±1,92	39,58-47,27	0,17
«Maladaptive violation»					
Asthenic reaction	8,86±0,81	7,24-10,49	8,75±0,83	7,08-10,41	0,79
Psychotic reaction	11,85±0,49	10,87-12,83	11,81±0,47	10,86-12,77	0,86
Maladaptive violation	20,72±1,15	18,42-23,02	20,56±1,19	18,18-22,95	0,76
Test of healthy behavior					
Smoking	7,26±0,34	6,56-7,96	6,64±0,38	5,88-7,40	0,23
Alcohol and drugs	8,71±0,19	8,32-9,10	6,79±0,371	6,04-7,54	0,003
Food	4,63±0,32	3,98-5,28	8,46±0,21	8,04-8,88	0,000000
Physical training	4,53±0,31	3,91-5,15	4,45±0,31	3,82-5,08	0,78
Stress control	7,59±0,19	7,21-7,98	7,25±0,22	6,81-7,70	0,36
Safety	9,35±0,10	9,14-9,56	9,20±0,11	8,97-9,43	0,33
The scale of life events (by G.E. Anderson)					
Total	461,76±31,88	398,18-525,33	448,97±39,91	369,39-528,55	0,33

Table 9; The results of psychoactive by Luscher test

Paramerters	I group (%)	p	II group (%)
Vegetative balance	0 до 9,8=39,2	0,0001	0 до 9,8 = 26,9
	0 до - 5= 13,6	0,0001	0 до -5 = 45,7
	-5 до - 9,8=47,2	0,0002	-5до-9,8=27,4
Heterogeneity - autonomy	0до-9,8=51,7	0,0001	0до-9,8= 59,6
	0,1 до 3 = 37,4	0,007	0,1 до 3 = 28,3
	3,1 до+9,8=10,9	0,0003	3,1до+9,8 = 12,1
Concentricity - eccentricity	0 до 9,8 =58	0,06	0до9,8 = 54
	-0, 1 до–5=21	0,011	-0,1до-5=36
	-5,1до-9,8 = 21	0,01	-5,1до-9,8= 10
Personal balance	0 до -9,8=56,9	0,0001	0до-9,8=46,6
	0,1 до 3=31,6	0,038	0 до 3=31,6
	3,1 до 9,8=11,5	0,022	0 до 9,8=21,8
Index of efficiency	16,1-20,9=26,5	0,0002	16,1-20,9=5
	14,1-16=12,7	0,002	15-16=6,8
	6-14=60,8	0,0001	9,1-14=88,2

Note: level of significance for confidence interval of 0.05

CONCLUSION

Our results draw attention to unconditional presence the differences in the level of adaptation to the conditions of the University and integration into the society in this category of students. It detected as in somatic health parameters as psychical and physiological parameters, as well as in the level of educational achievement and the dropout rate from the University (it is much higher). In addition, the as the group of students the orphans have great interest to working of individually with them. For these students was the important fact of the existence of attention to their personality, striving to understand their challenges, help them to solve problems, as well as the fact that all advice and recommendations given quite convincingly. . Individual approach is a highly effective means of improving learning outcomes and prevention of disadaptation of students (Hyman SE, Rudorfer MV., 2000; Mayurov, A. N., 2006; Miller L. C. et al., 2008; Litvinova N.A., 2008).

CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

AUTHOR CONTRIBUTIONS

DNO designed and performleed the experiments and also wrote the manuscript. Authors read and approved the final version.

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