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THE IMPACT OF NEGATIVE EVENTS ON PERSONAL FEELINGS AND ACADEMIC PERFORMANCE OF UKRAINIAN STUDENTS (ANALYSIS OF SURVEY RESULTS)

ВПЛИВ НЕГАТИВНИХ ПОДІЙ НА ОСОБИСТІСНІ ПОЧУТТЯ ТА УСПІШНІСТЬ УКРАЇНСЬКИХ СТУДЕНТІВ (АНАЛІЗ РЕЗУЛЬТАТІВ ОПИТУВАННЯ)

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Past five years Ukrainian youth have been suffering from many challenges, from the 3 years Covid-19 global pandemic and then 2 years of horror aggression of the Russian Federation.

Ukraine faced an extremely difficult challenge – full scale invasion of russian troops. The war has been going on for the third year, during which time the admission campaign to universities and educational institutions of different levels has already been held twice and it is known that the results of NMT (National Multi-subject Test) tests have decreased quite a bit (mathematics: the average score in 2022 was 148.1, the Ukrainian language is 154.5, and in 2023 mathematics is 129, and the Ukrainian language is 148). Therefore, it is quite important to monitor the situation with the success and personal feelings of applicants for education of different levels of accreditation. Ukraine now have to ensure conditions for the development of our young generation for them and Ukraines future.

Objective. to study the results of a survey of students of various courses of Igor Sikorsky Kyiv Polytechnic Institute and the Belotserkovsky Institute of Economics and Management regarding the personal feelings of applicants

for education regarding the war with the Russian Federation, their ability to successfully continue their studies.

1. An anonymous survey was conducted in two stages: in May 2023 for students of 1–3 courses and again in February 2024 for the same students. Students were asked questions (Google forms) about the level of stress in which they were and have been since 24.02.2024. Also, the questions concerned their emotional, physical and moral state, attitude to study, future intentions to work in Ukraine (5 possible answers).

Wilcoxon signed-rank test was used to investigate the bound samples. Since the samples turned out to be unequal, it was decided to check the Wilcoxon signed-rank test not only for questions, but also for sample averages that formed a total sample of $n = 13$.

Hypotheses for all studies were formulated at the level of probability of type I error α = 0.05 in general: H_0: in students since May 2023 by February 2024 there was no change in the perception of war as a stress factor; H_1: in students from May 2023 until February 2024, there were changes in the perception of war as a stressful factor.

Wilcoxon signed-rank test result is empirical test value $T_{empirically.} = min(R_1; R_2) = 20$.

From the table of critical values of the T-Wilcoxon criterion for non-directional alternatives at n = 13 and given α = 0.05 we find $T_{critical.} = 17$ (two-sided critical area) i.e. $T_{empirically.} > T_{critical.}$ hypotheses H_0 rejected.

Determine the size of the effect of r_{eff}:

$$Z = \frac{min(R_1; R_2) - \frac{13(13+1)}{4}}{\sqrt{\frac{13(13+1)(26+1)}{24}}} \approx -1{,}78, r_{eff} = \frac{Z}{\sqrt{n}} = -\frac{1{,}78}{\sqrt{13}} = 0{,}49.$$

The presented data give grounds to reject the null hypothesis by the Wilcoxon T-test and accept the hypothesis H_1 ($T_{empirically.} = 20$). That is, there are statistically significant differences in the test results given. In this case, the value (r_{eff} = 0,49) is the effect size above the average, but its value indicates the feasibility of increasing the statistical power of the test.

2. An anonymous survey of college students of the Belotserkovsky Institute of Economics and Management with similar questions (Google forms) was conducted. Since testing was carried out in 2024 – we give only BOX & Whisker diagrams. The diagrams show that the difference in the personal feelings of applicants for education of different accreditation levels is not extremely large (research continues):

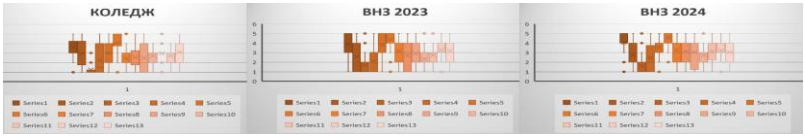

Fig. 1. BOX & Whisker charts (MS Excel) for education seekers of different levels of accreditation

3. An anonymous survey of the first year students of Igor Sikorsky Kyiv Polytechnic Institute was conducted. Students answered 10 questions (possible answers from 1 to 10), which made it possible to determine Spearman's rank correlation coefficients. Calculations were performed by MS EXCEL. Calculated correlation matrix $R_{ij}, i, j = \underline{1,10}$ (Fig. 2) correlation relationships of different strengths were detected (negative coefficient ($R_{10,4} = -0{,}25$, shows inverse dependence "weak", as well coefficient $R_{97} = 0{,}94$, that is an indicator of a "very strong" (almost linear dependence)). According to the table of critical values of Spearman's correlation coefficient for degree of freedom $df = 32$ and the given α = 0.05, we use $R_{critical.} = 0{,}349$ to determine a statistically significant relationship between the data. In general, which is natural, the higher the level of stress from the beginning of the war and information about the state of affairs at the front, the more difficult it is for students to study. There is also a connection between the desire to continue learning in Ukraine and the stress of the sounds of anxiety of missile danger that are heard during classes ($R_{86} = 0{,}92$). These factors are naturally associated with academic performance.

The obtained Spearman's correlation coefficient clearly demonstrates that stress really reduces morale and quite strongly affects the ability to acquire knowledge well and reduces the desire for further professional work in Ukraine.

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
X1	1									
X2	0,198546	1								
X3	0,329508	0,176076	1							
X4	0,189391	0,027952	0,174245	1						
X5	0,471594	0,454358	0,087977	0,143934	1					
X6	0,273666	0,470823	-0,12076	0,390872	0,441405	1				
X7	0,248239	0,079526	0,174097	0,065018	0,040271	-0,03702	1			
X8	0,203095	0,583705	-0,06439	0,330696	0,453684	0,917776	0,048471	1		
X9	0,324759	-0,00291	0,13305	0,12491	0,048455	0,052488	0,938985	-0,00205	1	
X10	-0,06245	0,281861	-0,03193	-0,25064	0,146597	0,184436	0,357481	0,244057	0,298053	1

Fig. 2. Correlation matrix of Spearman's rank correlation coefficients

Conclusions. As a result of the study, several important conclusions can be drawn. First, it is found that the perception of war as a stress factor among students has some changes over the past two years. This indicates the significant impact of the war on the psychological state of young people.

Secondly, the stress level and emotional state of students have worsened, which may adversely affect their ability to study and future career growth. Students assess their future prospects for studying and professional work in Ukraine, as well as their performance satisfactorily (median $\underline{X} = 6 \pm 0{,}5$).

Thirdly, correlations were found between stress levels and learning success, which emphasizes the importance of psychological support for students in such a difficult time.

In addition, blackouts have now begun again, which creates threatening circumstances for the educational process in Ukraine. The authors have already investigated the sad circumstances of autumn 2022 and winter 2023, when students received significant stress from studying without light and communication. For a more detailed and constructive analysis of data on personal feelings and success of Ukrainian students, we must further study the results in order to identify additional patterns and factors that affect the student environment in war conditions.

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