

The impact of sports activities on the psycho-emotional state of cadets in higher education institutions during wartime

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Abstract. Military personnel with developed psychophysical qualities have a higher likelihood of success in their profession. The development of psychophysical preparedness can help maintain efficiency and health in extreme conditions. Today, there is a need to improve the psychophysical training of security and defense sector personnel in Ukraine. Engaging in sports can be one of the possible ways to enhance the psychophysical preparedness of the personnel in the security and defense sector of Ukraine.

However, differences in psychophysical indicators between cadet-athletes and cadets without sports experience in the conditions of full-scale war have not been determined. This complicates the process of forming recommendations for developing physical training programs for cadets.

Research methods used include theoretical analysis and summarization of scientific-methodical literature and internet data, sociological surveys (questionnaires), and methods of mathematical statistics.

Results have confirmed that sports activities have a positive impact on the psycho-emotional state of cadets: they shape a higher level of life satisfaction, personal stress resistance (without affecting situational anxiety); they increase the ability to control anger without affecting the ability to control emotions of depression and anxiety. Similar tendencies were observed for other psychophysical state indicators, which, however, did not statistically confirm, possibly explained by their heterogeneity.

It can be recommended to engage in sports for the correction of the psychophysical state of cadets in higher education institutions during wartime conflicts.

Keywords: anxiety, cadets, depression, emotional control, life satisfaction.

I. INTRODUCTION

In the conditions of a full-scale war on the territory of Ukraine, there is an urgent need to improve the psychophysical training of the personnel in the security and defense sector of Ukraine. Military personnel with advanced psycho-physical qualities have a higher chance of success in their profession. The development of psycho-physical preparedness will help preserve efficiency and health in extreme conditions.

There is no universal solution on how best to prepare for effective actions in extreme conditions; however, a connection between the physical fitness of military personnel and their emotional control has been observed [1]. It is believed that sports activities can serve as an effective means of emotional regulation [2-8].

Available data in the specialized literature indicate that military personnel, cadets, and participants in combat often experience negative emotions [9-11] during peacetime or in the rehabilitation phase. However, there are not many scientific studies dedicated to highlighting

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the emotions experienced by military personnel in wartime conditions [12]. In stressful situations, the interaction of these indicators has not been studied. The lack of such data does not allow for the development of an effective training program for cadets. The purpose of the study: to determine what advantages exercise sports give to cadets of higher education institutions in the languages of full-scale war.

II. MATERIALS AND METHODS

We conducted a survey of cadets (n=282) from higher education institutions. Depending on whether respondents continued to engage in sports regularly or ceased intensive training in their chosen sport, their data were divided into two groups.

The survey was conducted in the conditions of a full-scale war in the country (1.5 years after the Russian invasion). The surveyed cadets did not directly participate in combat; they continued their education in higher education institutions.

We distributed the questionnaire through Google Forms, determining indicators of the psycho-emotional state of cadets. The questionnaire included questions from standard techniques to assess the level of life

satisfaction (SWLS) [17], emotional control [18], anxiety [19].

The empirical data were described through key statistical indicators: mean (Mean), its error (SE), standard deviation (SD), median (Median), minimum (Lower), and maximum (Upper) values. To test the null hypothesis that the sample is derived from a normally distributed population, the Shapiro-Wilk Test was conducted. For comparing whether the mean values of psychodiagnostics results significantly differed between two samples, a one-way analysis of variance (One-Way ANOVA) was performed.

III. RESULTS AND DISCUSSION

Previous engagement in sports positively impacted the psycho-emotional state of male and female cadets in the conditions of a full-scale war, as evidenced by a series of facts. For example, a higher level ($p=0.05$) of subjective existential (non-situational) life satisfaction was observed in sports-oriented cadets (23.36 ± 0.80 points) compared to non-sports-oriented cadets (19.73 ± 1.67 points). The standard deviation indicated a large dispersion of values around the mean, suggesting significant variability in the subjective well-being indicators of cadets (Table 1).

TABLE 1 LEVEL OF WELL-BEING AMONG CADETS

Indexes	Sports*	95% Confidence Interval							Shapiro-Wilk	
		N	Mean	SE	Lower	Upper	Median	SD	W	p
Women	0	19	21.16	1.262	18.507	23.81	19	5.50	0.914	0.087
	1	45	22.44	0.692	21.051	23.84	23	4.64	0.936	0.016
Men	0	22	19.73"	1.674	16.246	23.21	20	7.85	0.972	0.755
	1	55	23.36	0.803	21.755	24.97	24	5.95	0.968	0.151

Notes: 1. * – did not play sports, 1 – play sports;
2. " - reliability of differences $p=0.05$

Observing a similar trend in female cadets did not receive statistical confirmation. The life satisfaction scores we obtained were higher (better) than those of students from the University of Scotland (16.3 ± 4.9 points), Chinese students (16.1 ± 4.4 points), and Korean students (19.77 ± 5.84 points) [13]. However, our data were lower (worse) than the indicators typical for students in economically developed countries (measured in 1985-1993, ranging from 23.0 to 25.2) and military nurses (25.0 ± 6.8 points). Cadet indicators were similar to those of disabled students (20.8 ± 8.4 points and 24.3 ± 7.4 points). Ukrainian female cadets assessed their well-being similarly to women who experienced physical, sexual, or emotional violence (20.7 ± 7.4 points).

The data summary revealed that both female and male cadets generally showed average levels of life satisfaction, typical for most people in economically developed countries. However, the dispersion of indicators was significant, indicating substantial individual differences. Cadets who continued to engage in sports had slightly higher indicators. Therefore, engaging in sports could be recommended for enhancing life satisfaction.

Due to the full-scale war, the level of reactive anxiety among cadets was high in all experimental groups. However, female cadets with sports experience had significantly ($p < 0.05$) lower personal anxiety indicators (47.91 ± 1.04 points compared to 49.84 ± 2.39 points) (Table 2).

Therefore, the data we obtained indicate that in the conditions of a full-scale war, the average anxiety level of cadets was high. However, the dispersion between maximum and minimum indicators was significant, suggesting substantial individual differences in the stress resistance level of cadets in both gender groups. Generalizing the obtained data allows us to suggest that engaging in sports contributes to reducing personal anxiety because indicators were somewhat lower for cadets who trained; in women, the tendency was statistically confirmed ($p < 0.05$).

It can be assumed that the high anxiety levels in cadets were explained by professional stress during wartime combined with individual and personality traits. Similar but not as high anxiety indicators were observed among military personnel and combat participants.

TABLE 2 ANXIETY OF CADETS

Indexes	Sports *	95% Confidence Interval							Shapiro-Wilk	
		N	Mean	SE	Lower	Upper	Median	SD	W	p
Women										
Reactive anxiety	0	19	46.00	2.138	41.50	50.49	47	9.32	0.939	0.258
	1	45	47.22	0.804	45.60	48.84	47	5.39	0.973	0.359
Personal anxiety	0	19	49.84	2.393	44.81	54.87	51	10.43	0.761	<.001
	1	45	47.91"	1.037	45.82	50.00	49	6.96	0.848	<.001
Men										
Reactive anxiety	0	22	46.36	1.251	43.76	48.97	46	5.87	0.951	0.336
	1	55	46.98	0.791	45.39	48.57	48	5.86	0.978	0.410
Personal anxiety	0	22	46.45	1.606	43.11	49.79	46	7.53	0.956	0.414
	1	55	44.58	1.150	42.27	46.89	45	8.53	0.958	0.053

Notes: 1. * – did not play sports, 1 – play sports;
 2. " - reliability of differences p<0.05

According to experts [9], 30% of military personnel had a high level of personal anxiety, and 28% had high reactive anxiety. According to other data [14], 77% of combat participants had a high stress level, and 13% had a moderate level. It was found [15] that police cadets, on average, have a moderate level of professional anxiety, but senior cadets have a higher level of anxiety than first-year cadets. High prevalence of depressive symptoms was established [16] among military medical cadets. Therefore, according to our data, in wartime, the intensity of anxiety in cadets exceeded the indicators found in the scientific literature during peacetime military training.

The high level of anxiety inherent in cadets in peacetime is further intensified during wartime.

Anger control levels were significantly (p<0.05) lower in female cadets who did not engage in sports (14.53±1.17 points) than in those who continued training (17.24±0.52 points). Therefore, engaging in sports affects the ability of female cadets to control anger. However, depression and anxiety control indicators did not differ. This indicates that engaging in sports does not affect the ability to control these emotions in conditions of severe stress (Table 3).

TABLE 3 EMOTIONAL CONTROL OF CADETS

Indexes	Sports *	95% Confidence Interval							Shapiro-Wilk	
		N	Mean	SE	Lower	Upper	Median	SD	W	p
Women										
Anger control	0	19	14.53	1,176	12.056	17.00	14	5,12	0,926	0,145
	1	45	17.24"	0,520	16.196	18.29	17	3,49	0,972	0,346
Depression control	0	19	16.11	1,008	13.987	18.22	17	4,40	0,979	0,926
	1	45	16.80	0,567	15.657	17.94	17	3,81	0,981	0,656
Anxiety control	0	19	15.42	0,584	14.194	16.65	16	2,55	0,972	0,807
	1	45	15.51	0,420	14.665	16.36	16	2,82	0,966	0,207
Men										
Anger control	0	22	17.59	0,959	15.596	19.59	17,5	4,50	0,957	0,425
	1	55	17.38	0,553	16.274	18,49	18	4,10	0,982	0,569
Depression control	0	22	18.41	1,129	16.060	20.76	18.5	5,30	0,961	0,509
	1	55	16.87	0,615	15.640	18.11	18	4,56	0,970	0,192
Anxiety control	0	22	16.23	0,721	14.729	17.73	16,5	3,38	0,936	0,162
	1	55	15.49	0,500	14.488	16.49	16	3,71	0,973	0,239

Notes: 1. * – did not play sports, 1 – play sports;
 2. " - reliability of differences p<0.05

Generalizing the data on emotional control indicators among cadets showed that the study participants manage their emotions at an average level. However, significant dispersion between maximum and minimum results indicated heterogeneity in the emotional control levels of men and women. Engaging in sports affects the ability of female cadets to control anger, as evidenced by a significantly higher indicator (p<0.05).

IV. CONCLUSIONS

The study confirmed that engaging in sports has a positive impact on the psycho-emotional state of male and female cadets, leading to a higher level of personal life satisfaction (p=0.05) and personal stress resistance (p<0.05), without influencing situational anxiety. Sports experience enhances the ability to control anger (p<0.05) but does not affect the ability to control signs of depression and anxiety. Across a range of psychophysical state indicators, we observed similar trends that,

however, did not receive statistical confirmation, possibly due to their heterogeneity. This indicates significant individual differences in the stress resistance level of cadets in both gender groups. Engaging in sports is recommended for correcting the psychophysical state of cadets in higher education institutions during their professional activities.

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