Original Article

Dominating mental states of the representatives of individual sports under lockdown and martial law: comparative analysis

IHOR POPOVYCH[1], IRYNA KOVAL[2], YANA RAIEVSKA[3], VIKTOR PILETSKYI[4],
OLEKSANDER BURYANOVATIY[5], OLEKSANDRA HRYNCHUK[6]
[1]Kherson State University, Kherson, UKRAINE
[2]Bogomolets National Medical University, Kyiv, UKRAINE
[3]Interregional Academy of Personnel Management, Kyiv, UKRAINE
[4, 6]Vasyl Stefanyk Precarpathian National University, Ivano-Frankivsk, UKRAINE
[5]Volodymyr Vynnychenko Central Ukrainian State University, Kropyvnytskyi, UKRAINE

Abstract:
The purpose is to compare psychological content parameters of dominating mental states of the representatives of individual sports under forced isolation, caused by the ongoing COVID-19 pandemic and martial law. The sample consisted of the Ukrainian sportsmen (n=98), representing such sports as track and field (n=58), weight lifting (n=27) and freestyle wrestling (n=13). **Research methods:** valid methods with standardized forms for responses, participant observation, ranking, application of reliability coefficients. **Results.** It was established that there were no significant differences in the comparison of psychological content parameters under lockdown (Group 1) and martial law (Group 2). The ranking method allowed identifying the key measurements correlating with a respondent's resilience which is a main characteristic in handling difficulties in tough situations. It was established that the ranks are different in the following parameters: "Psychological Well-Being" (PWB); "General Meaningfulness of an Athlete's Life" (GMAL) at the level p>.01 and at the level p>.05 in the parameters: "Challenge" (Ch); "Hardiness" (Hr); "Control" (Cn); "Commitment" (Cm). Two factor structures of dominating mental states of the representatives of individual sports under lockdown and martial law were created. It was established that the factor structures have different frameworks and dispersions of scattering in similar mental states. It was determined that lockdown for the representatives of individual sports was less stressful than sporting activities under martial law. It is obvious that permanent involvement in information flows concerning the situation with the military aggression, air-raid warnings, changes in training schedules, finishing performance at the time of air-raid warnings and staying in bomb shelters had a considerable impact on the total index of meaning-of-life orientations, self-regulation processes, involvement and control of the representatives of individual sports. **Conclusions.** The suggested factor structures of dominating mental states and the identified ranking research parameters are of scientific value and can contribute to efficient tactical training in difficult and extreme conditions.
Key words: psychology of success, self-regulation, psycho-emotional state, depressiveness, neuro-psychic tension.

Introduction

The COVID-19 pandemic and military aggression have impacted not only Ukraine but the entire world. The European Union countries made mutual efforts protecting themselves against the ongoing COVID-19 pandemic and took an active part helping Ukrainians fight with the military aggressor. The events occurring currently have touched all the areas of human life. Sport is a powerful integrating factor in the fight against military aggression, violence and racism. Athletes are delegates of peace, always serving as a model of culture, behavior and thinking for humanity. Sportsmen have always manifested advanced mindset, maintained fitness, trained and participated in competitions even under the most difficult circumstances, demonstrating physical culture of an individual, strength and power of the human spirit in the dimensions of sporting activities. The key role in the above processes is played by dominating mental states.

It is known that mental states of an individual coexist with processes and qualities being the trinity of fundamental study of any mental phenomenon (Popovych, 2007). Mental states are the totality of combinations of mental qualities. Mental states have unique and specific nature. Availability of initial and final stages is specificity of mental processes. An individual is able to demonstrate their qualities in certain situations. Unlike mental processes and qualities, mental states are permanently available and capable of changing content parameters of mental activeness dynamically (Boryshevsky, 2012).

Researchers consider a mental state of a sportsman to be the totality of current abilities of the psyche, stable indexes of processes during a given period of time, combination of emotional experiences and dynamics of

Corresponding Author: IHOR POPOVYCH, E-mail: ihorpopovych999@gmail.com

----

mental activeness (Alekseev, 2006; Ilyin, 2000). Certainly, the above phenomena occupy a certain place in a psychological dimension. Solution to the problem of dominating mental states would make it easier to identify a single parameter which would be the basis of definition and classification of dominating mental states. Since there is no such parameter, different indexes were considered in this aspect: functional abilities, dominating emotions, excitation of the nervous system etc. These phenomena were combined to solve problems of sport psychology. Therefore, a mental state was defined as the level of mental activeness, being steady during a certain period of time, outlining possibilities of interaction between an organism and space (Ilyin, 2000).

Space should not be considered as a constant, since perception, processing of information and timely, or sometimes earlier reaction to the things happening require the development of an athlete's cognitive sphere. Reactions to events and attitudes towards the things happening are components of a sportsman's emotional sphere. Behavioral reaction and mental activeness outline the content of a sportsman's conative sphere. The ability to make optimal decisions, especially under difficult conditions, determines an operational component or self-regulation readiness of a sportsman. The research on mental states of weight-lifters' self-regulation readiness showed that their dominating mental states combined psychological content parameters of an individual's self-consciousness, in particular, self-esteem, the level of aspirations, expectation of the desired result and parameters relating to the axiological sphere, motivation for achieving results, physical and psycho-emotional indexes (Popovych et al., 2022h). Mental states on the eve and at the beginning of competitions are commonly referred to as pre-competition states. They are characteristic of each sportsman and occur because of participation in future competitions as conditional reflex reaction of a body, mobilizing it for performing important activity in a tense situation. An emotional component manifests itself specifically in pre-competition mental states and depends on a number of individual-typological parameters of each athlete. The research on pre-competition mental states of expectations of mini-football teams shows that the above mental states are an integral complex of individual characteristics of competition participants. It was established that value-sense self-regulation is an optimal pre-competition mental state capable of ensuring the desired result of a competition (Popovych et al., 2021e). A. Alekseev (2006) introduced the concept "optimal fighting state". The optimal fighting state of an athlete is considered to be the best psycho-physical state, allowing them to show their highest results and perform in the most successful way. This state is regulated and depends on the level of the formation of self-regulation readiness of an individual (Alekseev, 2006; Boryshevsky, 2012). It is necessary to pay attention to a regenerating state of sporting activities. It is desirable that a sports psychologist be actively engaged in post-competition care for an athlete. Post-competition mental states of sportsmen often require compensation of negative consequences occurring after a contest (match) or a competition season. Muscles are relaxed and energy resources of a body recover, but associations with negative events, fears and doubts continue arising in a sportsman's mind. These recollections accumulate gradually in sub-consciousness, that can prevent from achieving the desired sports aim at a crucial moment of the following competition, affecting expectations of a victory (Popovych et al., 2021c; 2022b). Post-competition mental states have a considerable impact on the complexes of mental resources of an athlete. It was established that complexes of mental resources are optimal integration of mental states, processes and qualities of their efficiency and awareness of life (Popovych et al., 2022c; 2022g).

Forced isolation caused by the ongoing COVID-19 pandemic introduced its rules to a social space and interpersonal interaction. The axiological sphere of personality has undergone transformations (Hulias, 2020; Hulias & Karpenko, 2022). Subjects of sporting activities had to restrict mass gatherings, including group trainings, sports competitions and group recovery activities. Individual trainings, tactical training in on-line and mixed formats of education had both a positive effect and a number of disadvantages. As time goes by it becomes evident that the strongest individuals win, those who were able to adapt efficiently and find new opportunities in changeable conditions of a social space. There are studies showing that under lockdown the abilities to adapt and search for a way out in difficult conditions are the most important (Haffejee et al., 2022). It was also established that forced isolation created favorable conditions for sportsmen's staying in a digital space, that caused a reduction in physical activeness, provoked exacerbated loneliness and had a negative impact on an athlete's training regime (Hudimova et al., 2021). Examination of personal determinants of sportsmen's mental exhaustion under lockdown is highly important in the context of our research (Popovych et al., 2021d). It was established that sportsmen in team sports in comparison with representatives of individual sports have lower parameters of mental exhaustion. The authors prove that it is due to significance of social support. In other words, representatives of individual sports are more stable, since they are more internalized in their training and focused on their performance. They are less dependent on social approval, unlike representatives of team sports. Obviously, emotional intelligence, the level of anxiety, stress resistance and other individual-typological parameters are very important in the above situation (Popovych et al., 2022d; 2022e). A number of restrictions imposed under lockdown become maximally widespread and severe under martial law. It is important that markers of psychological well-being and comfort of participants of sports competitions have essentially changed (Bryant & Veroff). N. Savelyuk (2022) compared psychological well-being of the respondents under lockdown and martial law. It was found out that an increase in the parameters of "Autonomy" is a positive transformation, and a reduction in the operational ability of "Space management" is a negative transformation. The above

--- 171

JPES ®   www.efsupit.ro

scientific facts attract our attention to representatives of individual sports and their functional ability in two difficult situations for comparison.

Theoretical analysis of sport psychology literature on the problem of dominating mental states of representatives of individual sports under lockdown and martial law allows summarizing that the problems of sporting activities under lockdown have been examined, and there is a lack of studies on mental states under martial law. The suggested comparative analysis is considered to be highly topical in the outlined dimension.

Dominating mental states of sportsmen are considered as active states of a subject's sporting activities which are an integral complex of prevailing mental processes and qualities aimed at achieving optimal sports results.

Hypothesis. We assume that: 1) comparison of descriptive frequency characteristics affecting dominating mental states of sportsmen will allow identifying significant differences in the research groups; 2) the factor structures of dominating mental states of the research groups will have different frameworks.

Purpose is to compare psychological content parameters of dominating mental states of the representatives of individual sports under forced isolation, caused by the ongoing COVID-19 pandemic and under martial law.

Material and methods

Methodology. Selection of methods for examining dominating mental states of the representatives of individual sports under lockdown and martial law requires parameters measuring an athlete's mental activeness under given changed conditions of a social space. The suggested psychological parameters reflected the research subject relevantly and the selected psycho-diagnostic instruments appeared to be valid, reliable and sensitive to the compared situations. The basic psychological parameter of the methodological foundation of the research is resilience (Lazos, 2018; Smith et al., 2008). The concept of an individual's expected readiness for activeness (Blynova et al., 2019; Popovych et al., 2021b; Popovych, 2014a; 2017) and the concept of hardiness S. Maddi (1994) have also become a component of the methodological foundation of the research.

The advanced experience in empirical studies concerning educational and training practice (Kobets et al., 2021a; 2021b; Popovych et al., 2019a; Popovych & Blynova, 2019), sensori-motor and cognitive processes (Plokhikh, 2021; Popovych et al., 2021f), psychological characteristics of the age period under study (Hulias & Hoian, 2022; Kozina et al., 2019; Popovych et al., 2021g), construction of a safe working environment (Mamenko et al., 2022; Nosov et al., 2021a; 2021b), stress resistance and resilience (Popovych et al., 2021a; 2022f) has been examined in order to create a comparative verifying strategy. Special attention was paid to the studies investigating a human factor in difficult and extreme conditions (Nosov et al., 2020) and changeable extreme conditions of professional activity (Zinchenko et al., 2020; 2021; 2022). The research applied the current tendencies in creation of empirical pictures and considered the regularities, requirements and specifications facilitating the creation of a comparative verifying strategy of our research.

Participants. The research sample involved the sportsmen having experience in participation at all levels of competitions including regional, national, international, European and world tournaments. Among the research participants there were the prize-winners of European Championships, World championships and participants of the Olympic Games. The sample involved the sportsmen representing Ukraine and training in Ukraine. It is considered to be the research limitations since an identical sample under lockdown and martial law was important. Martial law was imposed in Ukraine on the 24th of February, 2022. The sportsmen represented such regions of Ukraine as Kherson, Ivano-Frankivsk and Lviv. The respondents were from 15 to 35 years old (M=22.78; SD=5.59). Al the respondents were representatives of individual sports (n=98): track and field (n=58), weight lifting (n=27) and freestyle wrestling (n=13); females (n=45; 45.92%) and males (n=53; 54.08%).

Organization of research. The athletes participating in the research were selected randomly. The participants were informed of testing and agreed to participate voluntarily. It was important that the second stage of the research, i. e. under martial law, involve measurements of those respondents who participated in testing during the ongoing COVID-19 pandemic. The samples were arranged identically in terms of quantity and quality under lockdown (Group 1) and under martial law (Group 2) for accuracy of the experiment. Measurements under lockdown were performed in May – September, 2020, measurements under martial law were performed in August – September, 2022. Empirical data were obtained with consent of the Ethics committees of specialized federations and personal trainers.

Procedures and instruments. Taking into consideration the purpose, hypotheses and methods of the research, the following psychological content parameters were determined: resilience (Rs), depressiveness (D), neuro-psychic tension (NPT), situational reactive anxiety (SRA), personal anxiety (PA), general meaningfulness of an athlete's life (GMAL), psychological well-being (PWB), hardiness (Hr), commitment (Cm), control (Cn) and challenge (Ch). The following psycho-diagnostic instruments for measuring the above parameters were used: "Brief Resilience Scale" ("BRS") (Smith et al., 2008); "Zung Self-Rating Depression Scale" ("SDS") (Zung, 1965); "Neuro-psychic tension" ("NPT") (Nemchin, 1983); "The Spielberger trait anxiety inventory" ("STAI") (Spielberger, 1971); "Purpose in Life Test" ("PIL") (Leontiev, 2006); "The Scales of Psychological Well-being"

("SPW") (Ryff, 1989); "Hardiness Survey" ("HS") (Maddi, 1994). The above methods involve variability of the Stapel measuring scale, with the range of selections from three to seven variants, with direct and indirect registration of points by statements. Homogeneity of the empirical data was determined for each psycho-diagnostic instrument. The obtained indexes of α-Cronbach were within α = .833 – .939, that corresponds to a medium level and a high level of reliability.

Statistical analysis. "SPSS" v. 27.0 and the graphical editor MS "Word" were involved to implement the comparative verifying strategy of the research. The key descriptive frequency characteristics (M – the mean SD – the squared deviation) were determined, the significant differences were ranked (RG), factor analysis by the method ANOVA was used in order to avoid equality of the selected factors and create factor structures for comparison. Reliability of the empirical data was determined with the following coefficients: α-Cronbach, Spearman's (r_s), and Student's t-test.

Results

The empirical data are presented by descriptive frequency characteristics of the average values and united in two research groups: Group 1 and Group 2. Group 1 includes the data of the representatives of individual sports obtained under lockdown, Group 2 includes the data collected under martial law.

The chronological component between two cross-sections was about two years, therefore only those representatives were chosen whose sports career was at the active stage, i. e. neither lockdown, nor martial law stopped it. Such an approach allowed ensuring ecological validity, observing relevant shifts of the values of mental phenomena, performing accurate measurements and comparing them. Tabl. 1 presents comparison of the empirical data of Group 1 and Group 2 by all the psychological content parameters of the research.

Table 1. Comparison of the empirical data of Group 1 and Group 2 by all the parameters of the research

Scale	Group 1		Group 2		Student's t-test	Level of significance
	M_1	SD_1	M_2	SD_2		
"Brief Resilience Scale" ("BRS") (Smith et al., 2008)						
Rs	3.82	±.61	3.93	±.69	.7074	
"Zung Self-Rating Depression Scale" ("SDS") (Zung, 1965)						
D	44.78	±7.12	47.34	±7.69	.6754	–
"Neuro-psychic tension" ("NPT") (Nemchin, 1983)						
NPT	43.18	±7.17	47.92	±7.49	.6490	–
"The Spielberger trait anxiety inventory" ("STAI") (Spielberger, 1971)						
SRA	35.88	±8.69	36.12	±8.71	.4069	–
PA	36.22	±9.51	38.35	±9.55	.5006	–
"Purpose in Life Test" ("PIL") (Leontiev, 2006)						
GMAL	106.95	±15.18	101.34	±14.08	.7074	
"The Scales of Psychological Well-being" ("SPW") (Ryff, 1989)						
PWB	355.09	±49.56	343.87	±44.78	.7640	–
"Hardiness Survey" ("HS") (Maddi, 1994)						
Hr	78.23	±16.22	74.02	±15.57	.4069	
Cm	35.12	±8.21	36.44	±8.76	.2973	
Cn	30.12	±6.96	26.94	±5.77	.7435	
Ch	14.39	±3.62	14.68	±3.71	.2704	

Note: Group 1 – empirical data of the representatives of individual sports obtained under lockdown; Group 2 – empirical data of the representatives of individual sports obtained under martial law; M_1 – arithmetic mean of Group 1; SD_1 – square deviation of Group 1; M_2 – arithmetic mean of Group 2; SD_2 – square deviation of Group 2; Rs – Resilience; D – depression; NPT – neuro-psychic tension; SRA – situational reactive anxiety; PA – personal anxiety; GMAL – general meaningfulness of an athlete's life; PWB – psychological well-being; Hr – Hardiness; Cm – commitment; Cn – control; Ch – challenge.

We state that there are no significant differences determined by means of Student's t-test at the level $p<.05$ and $p<.01$ in the values of psychological content parameters Group 1 and Group 2. It was established that a number of content parameters measured under lockdown (Group 1), unlike the parameters measured under martial law (Group 2), maintain an obvious tendency to decline: D (M=44.78; SD=±7.12) and NPT (M=43.18; SD=±7.17).

The following parameters: PWB (M=351.19; SD=±49.33), Hr (M=75.51; SD=±15.54) and Cn (M=30.12; SD=±6.96) – have an obvious tendency to increase. We should also mention that the obtained values of the parameters under lockdown are not significantly different from the results obtained by other researchers in similar conditions (Hudimova, 2021; Savelyuk, 2022).

In order to find discrete determinants of the phenomenon under study, we determined correlations between the parameters under study and the key measurement – the respondents' resilience. Resilience of sportsmen is considered to the ability of a body to resist and achieve the aim under the most difficult conditions. The ranking of significant correlations was performed (RG). Tabl. 2 presents the ranking of the two research groups.

-- 173

JPES ®   www.efsupit.ro

Table 2. The ranking of correlations of the two research groups: Group 1 and Group 2

Scale	Rs			
	Group 1 (n=98)		Group 2 (n=98)	
	r_s	RG	r_s	RG
D	-.043	-	-.067	-
NPT	-.077	-	-.045	-
SRA	-.023	-	-.012	-
PA	-.033	-	-.027	-
GMAL	.192**	2	.287**	1
PWB	.245**	1	.186**	2
Hr	.087*	4	.143*	3
Cm	.048	-	.102*	5
Cn	.085*	5	.056	-
Ch	.101*	3	.121*	4

Note: RS – Resilience; Group 1 – empirical data of the representatives of individual sports obtained under lockdown; Group 2 – empirical data of the representatives of individual sports obtained under martial law; r_s – Spearman's correlation; RG – ranking by significant differences* – p<.05; ** – p<.01; D – depression; NPT – neuro-psychic tension; SRA – situational reactive anxiety; PA – personal anxiety; GMAL – general meaningfulness of an athlete's life; PWB – psychological well-being; Hr – hardiness; Cm – commitment; Cn – control; Ch – challenge.

Spearman's correlation (r_s) allowed determining the same number of significant correlations – five. Fig. I visualizes significant correlations and their ranking.
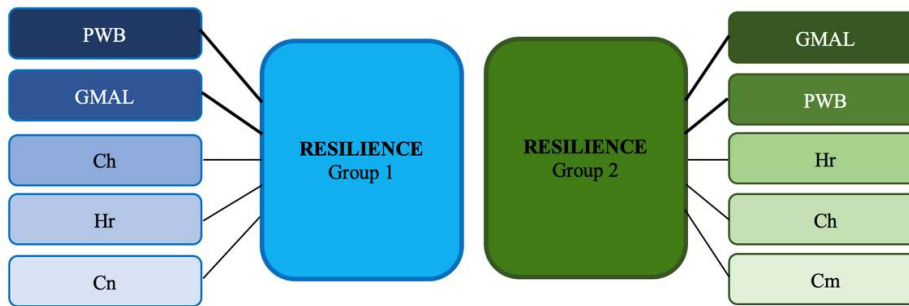
Note: ——— positive correlations at p≤.05; ▬▬▬ positive correlations at p≤.01; Group 1 – empirical data of the representatives of individual sports obtained under lockdown; Group 2 – empirical data of the representatives of individual sports obtained under martial law; PWB – psychological well-being; GMAL – general meaningfulness of an athlete's life; Ch – challenge; Hr – hardiness; Cn – control; Cm – commitment.

Figure I. The ranking of significant correlations in Group 1 and Group 2

It was established that the ranks are different in the parameters GMAL and PWB at the level p>.01. The first rank is Group 1 RG1= PWB (r_s=.245; p>.01), that can be explained by the fact that under lockdown the respondents faced the problems of psychological well-being, their resilience and internal resources allowed coping with the difficulties, moreover, in Group 1 there is a significant correlation with Cn (r_s=.085; p>.05). Availability of this correlation accounts for the fact that under lockdown the sportsmen could have control over the situation, in particular, their regime of individual training and organization of spatial interaction. These processes mostly depended on them and they could have control over them. It is not observed in Group 2, where Cn (r_s=.056; p<.05).

In Group 2 there is a different empirical picture, the first rank in Group 2 belongs to RG1= GMAL (r_s=.287; p>.01). It can be explained by the fact the general meaningfulness of an athlete's life is a key characteristic which dominates under martial law. In Group 2 the significant values Cm (r_s=.085; p>.05) confirm that permanent involvement in a usual flow of sporting activities distracts from the martial law and encourages sportsmen, allows them to survive and maintain major functions. In Group 1 and Group 2 in the parameters Hr and Ch there is a significant positive correlation at the level p>.05, that additionally equates complexity of both states measures.

According to the selected comparative verifying strategy of the research, the following step was a reduction in equality of the factors. The factor analysis ANOVA was used to identify factor loadings reflecting the content of the respondents' dominating mental states. Tabl. 3 presents the parameters of identification of factor loadings Group 1 and Group 2.

IHOR POPOVYCH, IRYNA KOVAL, YANA RAIEVSKA, VIKTOR PILETSKYI,
OLEKSANDER BURYANOVATIY, OLEKSANDRA HRYNCHUK

Table 2. Identification of factor loadings in Group 1 and Group 2

Group 1 (n=98)				Group 2 (n=98)			
Identification of factor loadings	V	d	∑d	Identification of factor loadings	V	d	∑d
$F1_{G1}$	6.326	24.12	24.12	$F1_{G2}$	6.723	26.03	26.03
$F2_{G1}$	4.456	16.15	40.27	$F2_{G2}$	4.532	16.32	42.35
$F3_{G1}$	3.211	10.08	50.35	$F3_{G2}$	3.839	9.86	52.21
$F4_{G1}$	2.245	5.23	55.58	$F4_{G2}$	2.432	7.11	59.32
$F5_{G1}$	1.023	3.06	58.64	$F5_{G2}$	1.645	4.65	63.97
				$F6_{G2}$	1.201	3.21	67.18

Note: Group 1 – empirical data of the representatives of individual sports obtained under lockdown; Group 2 – empirical data of the representatives of individual sports obtained under martial law; V – value; d – dispersion; ∑d – sum dispersion; $F1_{G1}$ – hardiness; $F2_{G1}$ – anxious-depressive; $F3_{G1}$ – controlled activeness; $F4_{G1}$ – neuro-psychic tension; $F5_{G1}$ – change in awareness of activity; $F1_{G2}$ – hardiness; $F2_{G2}$ – change in awareness of activity; $F3_{G2}$ – depressiveness; $F4_{G2}$ – permanent anxiety; $F5_{G2}$ – neuro-psychic tension; $F6_{G2}$ – search of challenges.

The factor analysis ANOVA was used to create two factor structures. The factor structure of Group 1 identifies five factor loadings reflecting five dominating mental states of the respondents under lockdown. The factor structure of Group 2 identifies six factor loadings dominating under martial law. Both structures have similar states. It was registered that $F2_{G1}$ and $F2_{G2}$ are the most loaded factors combining the parameters of hardiness (Hr) and resilience (Rs). It is obvious that under difficult life conditions these characteristics become more active and, according to E. Ilyin (2000), reflect interaction of an individual and space over a certain period of time. The parameters of the dominating mental state "change in awareness of activity" are different in the dispersion of scattering, $F5_{G1}$ and $F2_{G2}$, respectively. It was confirmed that the dispersion $F2_{G2}$ (V=4.532; d=16.32%) being the second one in size has a parallel with the first rank R_{G1}= GMAL (r_s=.287; p>.01). It is obvious that the martial law for the respondents is a difficult situation related to revaluation of values, search of meanings, changes in attitudes towards sporting activities and their role in sport. We assume that athletes experiencing the trials of such difficult conditions as lockdown and martial law will become stronger and acquire additional resourcefulness for the highest sports achievements. However, we cannot exclude the possibility that there will be such sportsmen who will be "devastated" by these social conditions. The following fact is of special scientific interest: in Group 1 the dominating mental state is $F2_{G1}$ – anxious-depressive, it is differentiated into two dominating states in Group 2: $F3_{G2}$ (depressiveness) and $F4_{G2}$ (permanent anxiety). Such dominating states are more dangerous since they deprive sportsmen of essential resources and can prevent them from achieving the expected high results. The respondents with the above dominating mental states require therapeutic regenerative activities. In the middle of the factor structure of Group 1, there is $F3_{G1}$ showing that the sportsmen with such a mental state managed to organize themselves, maintain their fitness and training methods due to self-regulation readiness and self-control under lockdown. The next dominating mental state is $F4_{G1}$, showing that difficult conditions (lockdown and martial law) caused boundary parameters of the respondents' neuro-psychic tension. In Group 1 this mental state $F5_{G2}$ has a less loading, which can be explained by differentiation of the mental states $F3_{G2}$ and $F4_{G2}$. The final dominating mental state in Group 2 is $F6_{G2}$ which facilitates the search of new challenges and meanings under changeable conditions of a social space. The total dispersion of the identified factor loadings in Group 1 made ∑d=58.64%, in Group 2 – ∑d=67.18%. The rest of the identifiers of factor loadings of both structures had loadings less than unit therefore they were not paid attention.

Discussion

Comparing the descriptive frequency characteristics by the selected psychological parameters (see Tabl. 1), we can conclude that the list of eleven measurements did not allow determining significant differences at the initial stage. Therefore, the first hypothesis is disproved. It should be emphasized that lockdown and martial law by their nature are absolutely different difficult extreme social conditions (Haffejee et al., 2022; Hudimova et al., 2021), but the selected scales did not allow registering that. Nevertheless, at the stage of ranking (see Tabl. 1 and Fig. I), combination of the selected scales allowed establishing a number of significant differences. In particular, the following fact is of special scientific interest: under lockdown the respondents could have control over the situation, for instance, their individual training regime, organization of spatial interaction, proved by the significant correlation Cn (r_s=.085; p>.05). The important fact determined by means of ranking is availability of the first rank in Group 2 assigned to R_{G1}= GMAL (r_s=.287; p>.01). It can be explained by the fact that war is a big disaster for humanity. Our respondents became witnesses of the Russian aggression. Among them there were internally displaces people or persons who were in the occupied territories over a certain period of time. The experienced events made the respondents reconsider their purposes, differently look at usual things, at sporting activities and attitudes towards them. Obviously, dreams, expectations and hopes inspire people (Popovych, 2014b), but facing a danger they normally return to familiar things they can do, firstly, in order to survive and

-- 175

----

support themselves and their relatives, therefore they reconsider their attitudes to their activities, in our case, towards sporting activities. There is a study on mental states of a risk establishing that under extreme conditions it is qualification and emotional intelligence of sportsmen that are crucial (Popovych et al., 2022a). It confirms our findings and accounts for a high rank of "general meaningfulness of an athlete's life" (R_{G1}= GMAL).

The second hypothesis is confirmed since the factor analysis ANOVA allowed determining the factor structures of dominating mental states of the research groups having different frameworks and dispersion of scattering (see Tabl. 3). The work by N. Savelyuk (2022) who chose psychological wellbeing as a central category of the research confirms the findings of our research. We focused on resilience since in sporting activities resistance and the ability to achieve aims have a clearly outlined vector reflecting the essence of sporting activities. In spite of the fact that the author's data obtained under lockdown showed a decline in the operational ability of "Space management", we determined that the function of control under lockdown Cn (r_s=.085; p>.05) has a significant correlation with a sportsman's resilience which is not available under martial law. The established differentiation of dominating mental states in Group 2 into $F3_{G2}$ (depressiveness) and $F4_{G2}$ (permanent anxiety) is an important scientific fact. It can be explained by the following fact: the respondents' psychological traumas, negative recollections, intrusions and flashbacks under martial law left a negative trace that can be recurrent, evoking memories and, therefore, have an actualizing function. All the above mental phenomena can be a result of experiencing a traumatic event that occurred under martial law and can be reflected as a post-traumatic stress disorder (PTSD). The prospects of further research can be found in examination of sportsmen who experienced PTSD and comparison of the results of a therapeutic effect between athletes and non-athletes.

Conclusions

1. The research substantiates that athletes' dominating mental states are active states of sporting activities presenting an integral complex of prevailing mental processes and qualities, aimed at achieving an optimal sports result.

2. Comparison of psychological content parameters by means of Student's t-test allowed stating that there are no significant differences under lockdown (Group 1) and martial law (Group 2).

3. The ranking method was used to determine the key measurements correlating with a respondent's resilience. It was established that the ranks are different in the following parameters: "Psychological Well-Being" (PWB); "General Meaningfulness of an Athlete's Life" (GMAL) at the level p>.01 and at the level p>.05 in the parameters: "Challenge" (Ch); "Hardiness" (Hr); "Control" (Cn); "Commitment" (Cm). The significant correlation in Group 1 Cn (r_s=.085; p>.05) shows that under lockdown the respondents could have control over the situation, in particular, their individual training regime, organization of spatial interaction. A high rank of "general meaningfulness of an athlete's life (R_{G1}= GMAL) in Group 2 is evidence of the respondents' revaluation of values, search of meanings and a change in the attitudes towards sporting activities and their role in sport under martial law.

4. Two factor structures of dominating mental states of the representatives of individual sports under lockdown and martial law were created. It was established that the factor structures have different frameworks and dispersion of scattering in similar mental states.

5. The first hypothesis was disproved, and the second hypothesis was confirmed. The purpose of the research was achieved. The obtained empirical facts are of scientific value and can be operationalized into tactical training of athletes under difficult and extreme conditions.

References:

Alekseev, A. V. (2006). Get over yourself! Mental preparation in sports. Rostov on Don: Phoenix.

Blynova, O. Ye, Popovych, I. S., Bokshan, H. I., Tsilmak, O. M., & Zavatska, N. Ye. (2019). Social and Psychological Factors of Migration Readiness of Ukrainian Students. *Revista ESPACIOS, 40*(36), 4.

Boryshevsky, M. Y. (2012). Personality in dimensions of self-awareness. Sumy: "Ellada" publishing house.

Bryant, F. B., & Veroff, J. (1982). The structure of psychological well-being: A sociohistorical analysis. *Journal of Personality and Social Psychology, 43*(4), 653-673. https://doi.org/10.1037/0022-3514.43.4.653

Haffejee, S., Vostanis, P., O'Reilly, M., Law, E., Eruyar, S., Fleury, J., Hassan, S., & Getanda, E. (2022). Disruptions, adjustments and hopes: The impact of the COVID-19 pandemic on child well-being in five Majority World Countries. *Children & Society, 00*, e12563. https://doi.org/10.1111/chso.12563

Hudimova, A. Kh. (2021). Psychological well-being and social media users' behavioral online patterns in everyday life and during COVID-19 pandemic. *Insight: the psychological dimensions of society, 5*, 133-147. https://doi.org/10.32999/2663-970X/2021-5-9

Hudimova, A., Popovych, I., Savchuk, O., Liashko, V., Pyslar, A., & Hrys, A. (2021). Research on the relationship between excessive use of social media and young athletes' physical activity. *Journal of Physical Education and Sport, 21*(6), 3364-3373. https://doi.org/10.7752/jpes.2021.06456

Hulias, I. (2020). Axiopsychological projection of life achievements of the personality. Kyiv: Lyudmila Publishing House.

Hulias, I. A., & Hoian, I. M. (2022). Explication of factors of the axiopsychological design of life achievements of modern youth. *Insight: the psychological dimensions of society, 7*, 41-57. https://doi.org/10.32999/2663-970X/2022-7-4

Hulias, I., & Karpenko, Z. (2022). Axiopsychological Differences of Men's and Women's Gender Displays in Modern Ukraine. *Journal of Education Culture and Society, 13*(1), 351-368. https://doi.org/10.15503/jecs2022.1.351.368

Ilyin, E. P. (2000). Sports psychology. St. Petersburg: Piter.

Kobets, V., Liubchenko, V., Popovych, I., & Koval, S. (2021a). Institutional Aspects of Integrated Quality Assurance of Engineering Study Programs at HEI Using ICT. In: Ivanov V., Trojanowska J., Pavlenko I., Zajac J., Peraković D. (eds). Advances in Design, Simulation and Manufacturing IV. DSMIE 2021. *Lecture Notes in Mechanical Engineering. Springer*, Cham. https://doi.org/10.1007/978-3-030-77719-7_30

Kobets, V., Liubchenko, V., Popovych, I., & Koval, S. (2021b). Institutional Aspects of Integrated Quality Assurance of Study Programs at HEI Using ICT. *CEUR Workshop Proceedings, 2833*, 83-92.

Kozina, Z., Cretu, M., Safronov, D., Gryn, I., Shkrebtii, Yu., Shepelenko, T., & Tanko. A. (2019). Dynamics of psychophysiological functions and indicators of physical and technical readiness in young football players aged 12-13 and 15-16 years during a 3-month training process. *Physiotherapy Quarterly, 27*(3), 20-27. https://doi.org/10.5114/pq.2019.86464

Lazos, G. P. (2018). Resilience: conceptualization of concepts, review of modern research. *Current issues of psychology, 3*(14), 26-64.

Leontyev, D.A. (2006). Test of life-meaningful orientations (LMO). Psychodiagnostic series. Moscow: Smysl.

Maddi, S. R. (1994). Hardiness and Mental Health. *Journal of Personality Assessment, 63*(2), 265-274.

Mamenko, P., Zinchenko, S., Kobets, V., Nosov, P., & Popovych I. (2022). Solution of the Problem of Optimizing Route with Using the Risk Criterion. In: Babichev, S., Lytvynenko, V. (eds). Lecture Notes in Computational Intelligence and Decision Making. ISDMCI 2021. *Lecture Notes on Data Engineering and Communications Technologies, 77*. Springer, Cham. https://doi.org/10.1007/978-3-030-82014-5_17

Nemchin, T. A. (1983). A state of mental stress. Leningrad: Leningrad State University.

Nosov, P., Zinchenko, S., Ben, A., Prokopchuk, Y., Mamenko, P., Popovych, I., Moiseienko, V., & Kruglyj, D. (2021a). Navigation safety control system development through navigator action prediction by Data mining means. *Eastern-European Journal of Enterprise Technologies, 2*(9(110)), 55-68. https://doi.org/10.15587/1729-4061.2021.229237

Nosov, P., Zinchenko, S., Plokhikh, V., Popovych, I., Prokopchuk, Y., Makarchuk, D., Mamenko, P., Moiseienko, V., & Ben, A. (2021b). Development and experimental study of analyzer to enhance maritime safety. Eastern-*European Journal of Enterprise Technologies, 4*(3(112)), 27-35. DOI: https://doi.org/10.15587/1729-4061.2021.239093

Nosov, P., Zinchenko, S., Popovych, I., Safonov, M., Palamarchuk, I., & Blakh, V. (2020). Decision support during the vessel control at the time of negative manifestation of human factor. *CEUR Workshop Proceedings, 2608*, 12-26.

Plokhikh, V. V. (2021b). Assessment of subject's readiness for urgent actions using the variations of sensorimotor response tasks. *Insight: the psychological dimensions of society, 5*, 46-65. http://doi.org/10.32999/2663-970X/2021-5-4

Popovych, I., Blynova, O., Aleksieieva, M., Nosov, P., Zavatska, N., & Smyrnova, O. (2019a). Research of Relationship between the Social Expectations and Professional Training of Lyceum Students studying in the Field of Shipbuilding. *Revista ESPACIOS, 40*(33), 21.

Popovych, I., Blynova, O., Kuzikova, S., Shcherbak, T., Lappo, V., & Bilous, R. (2021a). Empirical research of vitality of representatives of parachuting and yoga practice: a comparative analysis. *Journal of Physical Education and Sport, 21*(1), 218-226. https://doi.org/10.7752/jpes.2021.01029

Popovych, I., Blynova, O., Nass Álvarez, J. L., Nosov, P., & Zinchenko, S. (2021b). A HISTORICAL DIMENSION OF THE RESEARCH ON SOCIAL EXPECTATIONS OF AN INDIVIDUAL. *Revista Notas Históricas y Geográficas, 27*, 190-217.

Popovych, I., Blynova, O., Nosov, P., Zinchenko, S., & Kononenko, O. (2021c). Psychological factors of competitiveness of the women's youth handball team. *Journal of Physical Education and Sport, 21*(1), 227-235. https://doi.org/10.7752/jpes.2021.01030

Popovych, I., Borysiuk, A., Semenov, O., Semenova, N., Serbin, I., & Reznikova, O. (2022a). Comparative analysis of the mental state of athletes for risk-taking in team sports. *Journal of Physical Education and Sport, 22*(4), 848-857. https://doi.org/10.7752/jpes.2022.04107

Popovych, I., Halian, I., Halian, O., Nosov, P., Zinchenko, S., & Panok, V. (2021d). Research on personality determinants of athlete's mental exhaustion during the ongoing COVID-19 pandemic. *Journal of Physical Education and Sport, 21*(4), 1769-1780. https://doi.org/10.7752/jpes.2021.04224

Popovych, I., Halian, I., Lialiuk, G., Chopyk, R., Karpenko, Ye., & Melnyk, Yu. (2022b). Research of young female handball players' self-actualizing mental states. *Journal of Physical Education and Sport, 22*(7), 1599-1607. https://doi.org/10.7752/jpes.2022.07201

-- 177

Popovych, I., Hoi, N., Koval, I., Vorobel, M., Semenov, O., Semenova, N., & Hrys, A. (2022c). Strengthening of student youth's mental health using play sports. *Journal of Physical Education and Sport, 22*(6), 1384-1395. DOI: 10.7752/jpes.2022.06174

Popovych, I., Halian, I., Pavliuk, M., Kononenko, A., Hrys, A., & Tkachuk, T. (2022d). Emotional quotient in the structure of mental burnout of athletes. *Journal of Physical Education and Sport, 22*(2), 337-345. https://doi.org/10.7752/jpes.2022.02043

Popovych, I., Kurova, A., Koval, I., Kazibekova, V., Maksymov, M., & Huzar, V. (2022e). Interdependence of emotionality, anxiety, aggressiveness and subjective control in handball referees before the beginning of a game: a comparative analysis. *Journal of Physical Education and Sport, 22*(3), 680-689. https://doi.org/10.7752/jpes.2022.03085

Popovych, I., Pavliuk, M., Hrys, A., Sydorenko, O., Fedorenko, A., & Khanetska, T. (2021e). Pre-game expected mental states in men's mini-football teams: a comparative analysis. *Journal of Physical Education and Sport, 21*(2), 772-782. https://doi.org/10.7752/jpes.2021.02096

Popovych, I., Radul, I., Hoian, I., Ohnystyi, A., Doichyk, V., & Burlakova, I. (2022f). Athletes' resilience typology: a comparative analysis of individual and team sports. *Journal of Physical Education and Sport, 22*(9), 2036-2046. https://doi.org/10.7752/jpes.2022.09260

Popovych, I., Radul, I., Radul, V., Geiko, Ie., Hoi, N., Sribna, O., & Tymosh, Yu. (2022g). Construction and comparison of mental resource complexes of male and female sports teams. *Journal of Physical Education and Sport, 22*(9), 2053-2061. https://doi.org/10.7752/jpes.2022.09262

Popovych, I. S., & Blynova, O. Ye. (2019). Research on the Correlation between Psychological Content Parameters of Social Expectations and the Indexes of Study Progress of Future Physical Education Teachers. *Journal of Physical Education and Sport, 19*(SI 3), 847-853. https://doi.org/10.7752/jpes.2019.s3122

Popovych, I. S. (2007). Social and psychological expectations in interpersonal interaction in the groups of cadets of higher educational institutions of The Ministry of Internal Affairs of Ukraine. (Extended abstract of candidate's thesis). Kyiv: G. S. Kostiuk Institute of Psychology, NAPS of Ukraine.

Popovych, I. S. (2014a). Social expectations in primary school age. Proceedings of the 2nd International Academic Congress "Fundamental Studies in America, Europe, Asia and Africa", 27 Sept. 2014. USA. Vol. II. New York, 176-180.

Popovych, I. S. (2014b). Social expectations in theories of personality motivation. Bulletin of the Perm University. Philosophy. Psychology. Sociology, 4(20), 53-63.

Popovych, I., Semenov, O., Hrys, A., Aleksieieva, M., Pavliuk, M., & Semenova, N. (2022h). Research on mental states of weightlifters' self-regulation readiness for competitions. *Journal of Physical Education and Sport, 22*(5), 1134-1144. https://doi.org/10.7752/jpes.2022.05143

Popovych, I., Shcherbak, T., Kuzikova, S., Blynova, O., Nosov, P., & Zinchenko, S. (2021f). Operationalization of tactical thinking of football players by main game roles. *Journal of Physical Education and Sport, 21*(5), 334, 2480–2491. https://doi.org/10.7752/jpes.2021.05334

Popovych, I., Shevchenko, A., Galvez, L. M., Klenina, K. (2021g). Research of the relationship between social desirability and value orientations of adolescents. *Revista Notas Históricas y Geográficas, 26*, 241-268.

Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*, 1069-1081.

Savelyuk, N. (2022). Psychological well-being of student youth: a comparative analysis in the covid and war contexts. *Psychological Prospects Journal, 39*, 322-340.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine, 15*(3), 194-200.

Spielberger, C. D. (1971). Notes and Comments Trait-State Anxiety and Motor Behavior. *Journal of Motor Behavior, 3*, 263-279. https://doi.org/10.1080/00222895.1971.10734907

Zinchenko, S., Moiseienko, V., Tovstokoryi, O., Nosov, P., & Popovych, I. (2021). Automatic Beam Aiming of the Laser Optical Reference System at the Center of Reflector to Improve the Accuracy and Reliability of Dynamic Positioning. In: Hu, Z., Petoukhov, S., Dychka, I., He, M. (eds). Advances in Computer Science for Engineering and Education IV. ICCSEEA 2021. *Lecture Notes on Data Engineering and Communications Technologies, 83*. Springer, Cham. https://doi.org/10.1007/978-3-030-80472-5_1

Zinchenko, S., Tovstokoryi, O., Nosov, P., Popovych, I., Kobets, V., & Abramov, G. (2020). Mathematical Support of the Vessel Information and Risk Control Systems. *CEUR Workshop Proceedings, 2805*, 335-354.

Zinchenko S., Tovstokoryi O., Ben A., Nosov P., Popovych I., & Nahrybelnyi Y. (2022). Automatic Optimal Control of a Vessel with Redundant Structure of Executive Devices. In: Babichev S., Lytvynenko V. (eds). Lecture Notes in Computational Intelligence and Decision Making. ISDMCI 2021. *Lecture Notes on Data Engineering and Communications Technologies, 77*. Springer, Cham.

Zung, W. W. (1965). A self-rating depression scale. *Archives of General Psychiatry, 12*, 63-70. DOI: 10.1001/archpsyc.1965.01720310065008