

Research on mental states of weightlifters' self-regulation readiness for competitions

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Abstract:

The purpose of the study is to determine interdependence of self-regulation parameters and build a factor structure of mental states of weightlifters' self-regulation readiness for competitions. The research examines the weightlifters of sport teams participating in competitions of all levels – from a regional level (Championship of a region) to the highest level (the Olympic Games, World, European and Ukrainian Championships). The research participants n=136 are respondents aged from 14 to 28 years. **The research methods:** retrospective analysis and generalization of data in sport scientific literature; psycho-diagnostic instruments with selective scales, which reflect the research subject relevantly; purposeful observation with registration of the measured variable factors; factor analysis ANOVA; Spearman's correlation (rs); reliable coefficients. **Results.** The study established the matrix of factor loadings of psychological content parameters of mental states of weightlifters' self-regulation readiness. It presents a factor structure including five key factors (78.04%). The research determined that the most loaded factors are F1 "Meaning-of-Life Self-Regulation Readiness" (44.09%) and F2 "Resultative Self-Regulation Readiness" (12.13 %). The following factors are correlated: F1 and F2 ($p \leq .05$; $p \leq .01$); F3 "Expressive Self-regulation readiness" (9.08%), F4 "Processual Self-Regulation Readiness" (7.44%) and F5 "Cognitive Self-Regulation Readiness" (4.31%). The study found out that F4 "Processual Self-Regulation Readiness" are the least controlled mental state of weightlifters' self-regulation readiness. **Conclusions.** It was empirically established that the obtained scientific facts in the research on mental states of weightlifters' self-regulation readiness for competitions are directly related to revealing sportsmen's self-regulation and psycho-emotional potential that can be crucial for achieving expected victory. The study proved that the respondents' individual-typological parameters have a significant positive correlation with the parameters of aspirations. The study established and substantiated that the obtained scientific facts should be operationalized into developing programs for individual psycho-emotional training of weightlifters at the stage of specialized basic training.

Key words: weightlifters' health, self-regulation, self-esteem, level of aspirations, psycho-emotional resource.

Introduction

In sport of high achievements, over the course of two decades, there has been a sharp increase in physical and psycho-emotional loads on sportsmen. Excessive physical and psycho-emotional loads border on human capabilities and often cause serious injuries, fast exhaustion, psycho-emotional fatigue and burn-out of sportsmen' potential. The Olympic Games, World and European Championships have crossed the borders of sport and increasingly play an important integrating, social-economic and even political role. Such rhetoric activates a competitive component and search of latent resources in training a champion – from the first year of trainings to receiving the highest expected award. Topicality of the research on mental states of weightlifters' self-regulation readiness for competitions consists in revealing a latent psycho-emotional resource.

Self-regulation of a sportsman's behavior is conscious, purposeful planning, constructing and transforming acts and actions by a subject of a competitive activity in accordance with a personally significant purpose and important needs (Boryshevsky, 2010: 144). It is a sportsman's conscious activeness aimed at mobilizing their internal resources to achieve a significant aim. M. Boryshevsky (2010) states that a need to evaluate critically and control one's own behavior, direct deliberately, transform one's own acts and actions taking into consideration their probable consequences for themselves and others, willingness to follow socially valuable and personally significant norms, rules of interpersonal relationships are manifestations of a sportsman's behavioral self-regulation.

A sportsman's self-regulation is closely related to self-esteem and the level of aspirations. The researchers N. Oliynyk and S. Voitenko (2020) found out that mature objective self-esteem is a reliable mechanism of self-

regulation that is an essential aspect of training highly qualified weightlifters. It can be explained by the fact that highly qualified weightlifters are inclined to evaluate themselves lower than their teammates. It concerns weightlifters with high qualification (members of youth team and Ukraine's team). At the same time, weightlifters have high motivation for achieving a high result. In particular, 70.0% of weightlifters set a task to become a world champion or a champion of the Olympic Games as a main motif of further training, 12.0% – to enter a national team, 12.0% – to maintain their position in a team and only 6.0% are guided by financial interests (Oliylyk & Voitenko, 2020). The research on weightlifters' self-evaluation of their current state during a training period established a favorable level. It also found out that in sportsmen's analyzing their functional state, there is a subjectively unconscious evaluation of their reduced ability to work. The study explains that this decline is of functional origin and does not undergo reduction during the period of recovery (Tverdun & Galashko, 2018). Continuing analysis of the problem of mental states of sportsmen's self-regulation readiness, we should mention that A. Babayan (1984) examined weightlifters' mental readiness. The researcher revealed the essence of the mechanism of readiness as a mental formation of consciously regulated activity, its structure, content components and specifics of its development under extreme conditions of a weightlifter's sports activity. The scientist found out that psycho-regulatory mechanisms of activity allow achieving the best results at the level of high sport mastery (Babayan, 1984). These results are confirmed in the studies on mental states of expecting victory (Popovych et al., 2019b; 2020b; 2021e) and in the research on dominating mental states in other activities (Popovych & Blynova, 2019a; 2019b; Popovych et al., 2019c). A. Babayan (1984) considers characteristics of prospective and stage motifs of aspiration to be the key indexes of weightlifters' mental readiness, paying special attention to "the purpose of the first attempt". Sportsmen with high mental readiness demonstrate sound sense while choosing initial competition weight, that allows them to evaluate their psycho-emotional state adequately and set a high level of "a real purpose" and a fairly high level of "an ideal purpose" (Babayan, 1984; Oliylyk & Voitenko, 2020). Operating the levels of real and ideal purposes in an individual's aspirations indicates operational ability to evaluate themselves in current activities.

The research on individual-typological characteristics of weightlifters is of special scientific interest. It was established that highly qualified weightlifters are characterized by sensitivity, caution, expectation of others' attention, internal tension, anxiety, suspicious and mistrustful attitude towards others. In particular, sportswomen are characterized by high radicalism and an increased level of neuroticism (Mochernyuk, 2018). Important individual-typological characteristics of weightlifters by Cattell's 16 PF Questionnaire include: emotional stability, carelessness, consciousness and steadiness as a secondary factor (Oliylyk & Voitenko, 2020). The study on dynamic changes in the level of weightlifters' preparedness in terms of their personal qualities is interesting in the context of our research. The typological complex of sportsmen according to the level of their preparedness is mainly permanent, with minor exceptions. In particular, among the weightlifters with a higher level of preparedness there is a larger percentage of sportsmen with high mobility of inhibition process. Among them, there are more cases of dominating inhibition in external balance, than among beginners. Whereas young sportsmen are characterized by more steadiness and dominating excitation in internal balance, highly qualified sportsmen are characterized by more inhibition and steadiness (Oliylyk & Voitenko, 2020), which are combination of external and internal factors.

We should pay attention to the fact that expectation of victory plays a key role in weightlifters' readiness for winning. Sportsmen's expectations are a self-regulation ability of training and competition activities. They outline a probable scenario of the course of actions (Popovych, 2005; 2007; 2014). We focus on weightlifters' expectations in relation to self-esteem and the level of aspirations.

We consider mental states of weightlifters' self-regulation readiness to be an active state of an individual's sporting activity involving self-esteem, the level of aspirations, expectation of a desirable result, a complex of individual-typological, motivational, value-related, physical and psycho-emotional factors.

Hypothesis. We assume that: 1) research on mental states of weightlifters' self-regulation readiness for competitions will allow establishing important scientific facts which will contribute to revealing a latent psycho-emotional resource that will affect the receipt of the highest expected award; 2) individual-typological parameters have a positive correlation with the parameters of the respondents' self-esteem and aspirations that is important for individualization of weightlifters' psycho-emotional training at the stage of specialized basic training.

Purpose is to determine correlation of self-regulation parameters and build a factor structure of mental states of weightlifters' self-regulation readiness for competitions.

Material and methods

Methodology. The methodology of the research on mental states of weightlifters' self-regulation readiness for competitions consists of conceptual statements about a sportsman's behavioral self-regulation (Boryshevsky, 2010) and the mechanism of readiness as a mental formation of consciously regulated activity of a weightlifter (Babayan, 1984). The initial statement is a self-regulation complex of components which is an organic unity of mental phenomena of an individual's self-esteem, aspirations and expectations accompanied by close correlation of these parameters (Popovych et al., 2019a; 2021b; 2021g). We took into consideration the statement about an

individual-typological complex of weightlifters' dominating characteristics (Tovstonoh, 2012). The outlined methodology affected the formation of a complex of psycho-diagnostic parameters which reflected the research subject relevantly.

While creating an empirical picture of the research and planning the ascertaining stage, we took into consideration the experience of application and the result of approbation of standard test methods in the studies on adaptation and self-regulation of an individual (Blynova et al., 2019; 2020; 2022; Klenina, 2019; Popovych et al., 2020a; 2022a; 2022b), training and competition activities of sportsmen (Blynova et al., 2020; Popovych et al., 2021f), individual-typological characteristics of respondents (Blynova & Kruglov, 2019), educational technologies affecting a training process (Hudimova, 2021; Hudimova et al., 2021; Kobets et al., 2021a; 2021b), health-maintaining technologies in sport (Popovych et al., 2021c; 2021d; 2022c). Special attention was paid to the cycle of empirical studies examining respondents' psycho-emotional (Cheban et al., 2020a; 2020b; 2020c; Plokhikh, 2021) and physical potential bordering on human capabilities (Nosov et al., 2020b; 2021b;). Attention was also paid to modern adjacent research in other human activities (Mamenko et al., 2022; Nosov et al., 2020a; 2021a; Zinchenko et al., 2020; 2021; 2022a; 2022b). We considered the research on tactical training of weightlifters (Antoniuk et al., 2017; Tovstonoh et al., 2019). A whole array of the examined scientific literature contributed to creating an empirical picture of the research and distinguishing the most essential scientific facts of weightlifters' latent psycho-emotional potential.

Participants. The research participants were weightlifters of the teams LChYSS "Enerhetyk" (Zhydachiv, Ukraine), LChYSS "Enerhetyk" (Lviv, Ukraine), ChYSS "Enerhiia" (Lviv, Ukraine), RChYSS "Chornobaivka educational complex" (Chornobaivka, Kherson region, Ukraine), ChYSS (Kherson, Ukraine). Among the participants there were champions of Ukraine, Europe and the World in weight-lifting and participants of the 31st Olympic Games in Rio-de-Janeiro (Brazil) and the 32nd Olympic Games in Tokyo (Japan). The research involved $n=136$ sportsmen, males ($n=92$; 67.65%) and females ($n=44$; 32.35%). The respondents participating in the research had the experience of competitions and winning awards. The age range of the sportsmen was 14 – 28 years ($M=19.6$). We were given permission by the administrations of schools with weight-lifting programs, and participation in the research was additionally agreed with their personal trainers. The research was based on the principles of voluntariness, awareness and confidentiality of personal data. Such an approach ensured a responsible attitude of the respondents towards participation and a lack of random data.

Organization of research. The ascertaining research lasted from September, 2020 to December, 2021. During the training stage there were 112 purposeful observations in the context of training for competitions of the regional level and Ukrainian Championship. The key parameters of weightlifters' competition activity which are indicators of mental states of self-regulation readiness were registered in observation protocols. A large amount of empirical data was collected. We registered the empirical data only of those sportsmen who trained and took part in competitions. While testing and conducting observations, the research organizers followed the ethical standards of Helsinki Declaration (2013).

Procedures and instruments. Psycho-diagnostic instruments were given in compliance with the logic of empirical research. The research on weightlifters' self-esteem and level of aspirations was conducted by the method of Dembo-Rubinstein modified by A. Prikozhan "Diagnosis of Self-Esteem" ("DSE") (Prikozhan, 2007). We used three scales which are important in the context of the research on respondents' self-regulation: Self-Esteem (SE), the level of Aspirations (LA) and the Difference between Self-Esteem and Aspirations (SSA) by the key values constituting the meaning of life of an individual. The coefficient of reliability is α -Cronbach $\alpha_{DSE} = .844$ (Gottsdanker, 1978).

The test "Life-Meaningful Orientations" ("LMO") (Leontyev, 2006) was used to establish content parameters related to the respondents' meaning-of-life orientations. Application of this method allowed establishing localization of control on the purpose of life, process or result. They are the key parameters in the subjective continuum "past-present-future". The two scales also allowed determining the level of localization of control "Self" and "Life". We used the integrating scale of General Knowledge of Life (GKL). The coefficient of reliability is α -Cronbach $\alpha_{LMO} = .868$ (Gottsdanker, 1978).

The questionnaire "Level of Expectations of a Sportsman" ("LES") is a modified variant (Popovych et al., 2020c) of the approbated original questionnaire "LSE" (Popovych, 2017). Three scales were used: Awareness of Expected Events (AEE); Expected Attitude towards Competitors (EAC); Expected Results of a Sportsman (ERS). The coefficient of reliability is α -Cronbach $\alpha_{DSE} = .897$ (Gottsdanker, 1978).

The method "Emotionality Characteristic" ("EC") (Ilyin, 2000) was used to establish parameters of emotionality. Emotional stability is a key characteristic of weight-lifters, characterizing emotional maturity and emotional intelligence of a sportsman. Emotional stability affects an individual's self-regulation ability. The basic scales were used: Emotional Intensity (EI), Emotional Duration (ED) and Emotional Excitation (EE). Emotional Stability (ES) is a combination of intensity and duration of emotional excitation and determined with the formula: $EI+ED$. Sometimes this parameter is called reactivity of emotions. It is the key parameter in sport studies. The coefficient of reliability is α -Cronbach $\alpha_{DSE} = .811$ (Gottsdanker, 1978).

We used the integral scale of the method "Level of Subjective Control" ("LSC") (Bazhin et al., 1984) – General Internality (GI). The scale was applied as an important parameter of a sportsman's subjectivity.

Correlations of General Internality (GI) with other key parameters of mental states of self-regulation readiness are also of scientific interest. It is not reasonable to determine α -Cronbach by one scale. The parameters of α -Cronbach are from .811 to .897, being medium and high levels of this index (Gottsdanker, 1978).

Statistical analysis. “SPSS” v. 27 was used to process empirical data. Factor analysis ANOVA reduced the number of factors of mental states of weightlifters’ self-regulation readiness. The coefficients of reliability were used: α -Cronbach, Student t-test and Spearman’s correlation coefficient (r_s). Reliability of correlations was determined by means of Spearman’s correlation coefficient (r_s). The levels $p \leq .05$ and $p \leq .01$ are reliable. In order to replicate the research, we gave descriptive frequency characteristics. These parameters were compared with other sport studies and with the data obtained by the authors of the methods.

Results

The study presents the results of the ascertaining stage of the research through basic parameters of frequency characteristics. The arithmetic mean (M) and the mean squared deviation (SD) appropriately reflected the levels of the research parameters. Tabl. 1 presents the scales of the methods: “DSE” (Prikhozhan, 2007), “LMO” (Leontyev, 2006), “LES” (Popovych et al., 2020c), “EC” (Ilyin, 2000), “LSC” (Bazhin et al., 1984).

Table 1. Empirical data of descriptive frequency characteristics of the research (n=136)

Scale	Arithmetic Mean (M)	Mean-Squared Deviation (SD)
“DSE”		
Self-Esteem (SE)	69.42	±15.43
Level of aspirations (LA)	89.51	±10.81
Difference between Self-Esteem and Aspirations (DSA)	18.63	±3.90
“LMO”		
Life Goals (LG)	32.09	±7.13
Process (P)	29.12	±5.09
Result (R)	25.46	±5.01
Locus of Control-Self (LCS)	22.49	±4.62
Locus of Control-Life (LCL)	29.13	±4.29
General Awareness of Life (GAL)	104.11	±14.67
“LES”		
Awareness of Expected Events (AEE)	16.12	±3.24
Expected Attitude towards Competitors (EAC)	14.12	±1.69
Expected Results of a Sportsman (ERS)	34.12	±8.49
“EC”		
Emotional Intensity (EI)	5.12	±1.10
Emotional Duration (ED)	3.33	±.84
Emotional Excitation (EE)	3.23	±.83
Emotional Stability (ES)	4.89	±.98
“LSC”		
General Internality (GI)	189.45	±20.23

The obtained empirical data “SE” (M=69.42; SD=±15.43) and “LA” (M=89.51; SD=±10.81) by the method “DSE” have no significant deviation from the data in other empirical sport studies (Popovych et al., 2021d) and are within the norms of our method (Prikhozhan, 2007). The test “LMO” also showed that the values of the respondents’ average parameters by the basic scales (M=22.49–32.09; SD=±4.29–±7.13) and the integrated scale (M=104.11; SD=±14.67) are within the recommended norms according to the test adapted by D. Leontyev (2006). There were no significant deviations in the parameters measured by the questionnaire “LES” in comparison with the sport sample (Popovych et al., 2020c) and the norms of “LSE” (Popovych, 2017). A slight increase in the parameters was registered in GI (M=189.45; SD=±20.23), that can be explained by high internalization and concentration on the weightlifters’ training process. Significant changes in the average parameters by the method “EC” were registered only in the scale “Emotional Stability” ($t=2.2$; $p \leq .05$). Obviously, the suggested sport sample of weight-lifters, whose prevailing majority are experienced participants of weight-lifting tournaments, has emotional stability exceeding the suggested average norms (Ilyin, 2000).

It should be mentioned that the difference between self-esteem and aspirations (DSA) has a positive direction and corresponds to the average level (M=18.63; SD±3.90). A high level of differences between the weightlifters’ aspirations and real potentialities leads to the respondents’ biased self-evaluation. It causes inadequate behavior with emotional breakdowns and excessive anxiety. We should emphasize that the level of aspirations is closely related not only to self-esteem, but also to success.

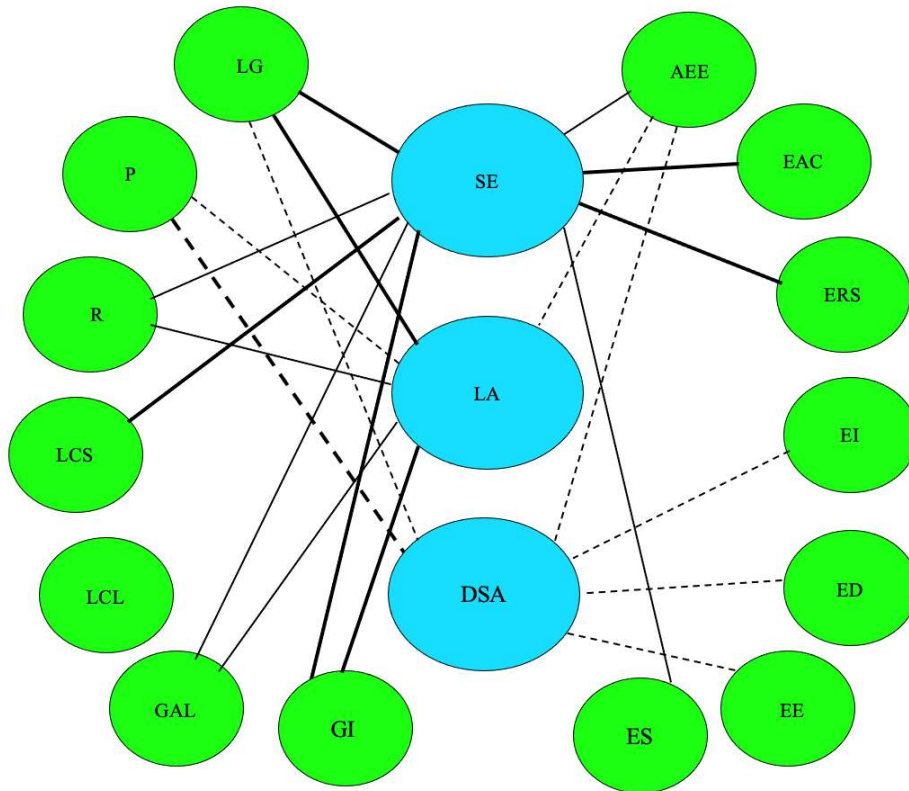
The study found out interdependence of linear correlation of the indexes of the weightlifters’ self-regulation “DES” with personal qualities. Tabl. 2 presents the matrix of these correlations.

Table 2. Matrix of correlation of self-regulation indexes with the respondents' personal qualities (n = 136)

Weightlifters' personal qualities	Self-regulation indexes		
	SE	LA	DSA
Life Goals (LG)	.201**	.239**	-.185*
Process (P)	-.038	-.086*	-.239**
Result (R)	.146*	.186*	.076
Locus of Control-Self (LCS)	.333**	.063	.049
Locus of Control-Life (LCL)	-.051	.013	-.038
General Awareness of Life (GAL)	.128*	.102*	.011
Awareness of Expected Events (AEE)	.084*	-.085*	-.186*
Expected Attitude towards Competitors (EAC)	.201**	-.041	-.063
Expected Results of a Sportsman (ERS)	.227**	.074	.031
Emotional Intensity (EI)	.062	-.051	-.091*
Emotional Duration (ED)	.049	-.065	-.115*
Emotional Excitation (EE)	.051	-.036	-.086*
Emotional Stability (ES)	.088*	.045	.056
General Internality (GI)	.243**	.283**	.050

Note: SE – Self-Esteem; LA – Level of Aspirations; DSA – Difference between Self-Esteem and Aspirations; * – $p < .05$; ** – $p < .01$.

In order to visualize the obtained data graphically, we created a correlation pleiad between the indexes of self-regulation and the weightlifters' personal qualities (Fig. 1).



Note: - - - negative correlations with $p \leq 0.01$; - - - - - negative correlations with $p \leq 0.05$; ——— positive correlations with $p \leq 0.01$; ——— positive correlations with $p \leq 0.05$; SE – Self-Esteem; LA – Level of Aspirations; DSA – Level of Differences between Self-Esteem and Aspirations; LG – Life Goals; P – Process; R – Result; LCS – Locus of Control-Self; LCL – Locus of Control-Life; GAL – General Awareness of Life; GI – General Internality; AEE – Awareness of Expected Events; EAC – Expected Attitude towards Competitors; ERS – Expected Results of a Sportsman; EI – Emotional Intensity; ED – Emotional Duration; EE – Emotional Excitation; ES – Emotional Stability.

Figure 1. Correlation pleiad between the indexes of self-regulation and the weightlifters' personal qualities (n=136)

We state that Self-Esteem (SE) has the largest number of significant correlations – nine ($p \leq .05$; $p \leq .01$). It can be explained by the fact that weightlifters' self-esteem is characterized by high operational potential in maintaining long-lasting successful sporting activity. It means that all psycho-emotional and physical activities of sportsmen are reflected in terms of evaluation of their mental and physical states, health, readiness for excessive loads, evaluation of their potential at a particular moment, readiness for a well-thought risk before making a decision on increasing weight, before each competition and in other important training and competition situations. Adequate self-esteem combined with developed reflection, high operational readiness of sportsmen for a probable course of events is essential in the formation of a mental state of weightlifters' self-regulation readiness. In comparison with Self-Esteem (SE), there are less significant correlations of the Level of Aspirations (LA) and of the Difference between Self-Esteem and Aspirations (DSA) – six ($p \leq .05$; $p \leq .01$). The strongest positive correlation is observed in SE with LCS (.333; $p \leq .01$). It is obvious, since localization of control "Self" reinforces the respondents' reflective ability. We also registered high indexes of a positive correlation of SE with GI (.243; $p \leq .01$) and LA with GI (.283; $p \leq .01$). General internalization of sporting activity of sportsmen is basic for winning. We consider a positive significant correlation of SE with all the parameters of the respondents' achievements to be an important scientific fact. Awareness of a probable course of events, expected attitude and expected results are content parameters of weightlifters' self-regulation ability. We emphasize the only positive significant correlation of SE with ES (.088; $p \leq .05$). It shows that emotional stability is an important component of the respondents on their way to success. Weightlifters' emotional intelligence may have a positive correlation with the above parameters, but this assumption should be tested empirically.

Factor analysis ANOVA allowed establishing the current mental states of the respondents' self-regulation readiness. The suggested complex of seventeen factors reflected the content specificity of the phenomenon under study appropriately. Five key factors were established. All the factors have loadings greater than one. The percentage sum of dispersion factors equaled 78.04% (Tabl. 3).

Table 3. Factor matrix of mental states of weightlifters' self-regulation readiness (n=136)

Factors	F1	F2	F3	F4	F5
Self-Esteem (SE)	.782				
Level of Aspirations (LA)	.567				
Difference between Self-Esteem and Aspirations (DSA)				-.504	
Life Goals (LG)	.578				
Process (P)				.609	
Result (R)		.626			
Locus of Control-Self (LCS)	.744				
Locus of Control-Life (LCL)	.678				
General Awareness of Life (GAL)	.609				
Awareness of Expected Events (AEE)					.523
Expected Attitude towards Competitors (EAC)	.678				
Expected Results of a Sportsman (ERS)	.603				
Emotional Intensity (EI)	-.509				
Emotional Duration (ED)	-.504				
Emotional Excitation (EE)		-.578			
Emotional Stability (ES)			.673		
General Internality (GI)		.669			
Dispersion, %	44.09	13.12	9.08	7.44	4.31
Σ dispersion, %	44.09	57.21	66.29	73.73	78.04
Value	10.42	3.10	2.15	1.76	1.01

Note: F1 – Meaning-of-Life Self-Regulation Readiness; F2 – Resultative Self-Regulation Readiness; F3 – Expressive Self-Regulation Readiness; F4 – Processual Self-Regulation Readiness; F5 – Cognitive Self-Regulation Readiness.

F1 "Meaning-of-Life Self-Regulation Readiness" (48.34%) of the weightlifters combined positively loaded personal parameters: SE (.782), LA (.567), LG (.578), LCS (.678), GAL (.609), AEE (.678), ERS (.603) and negatively loaded: EI (-.509), ED (-.504). F1 reflects a meaning-of-life component in the respondents' self-regulation readiness before competitions. The weightlifters with the dominating current mental state consider sporting activity to be their meaning of life. This mental state is a nucleus of a respondent's value-oriented area. Such sportsmen devote their lives to their favorite affair. It can be a factor of high sport achievements and of fatal disappointments. "Meaning-of-Life Self-Regulation Readiness" has the largest dispersion of coverage (44.09%).

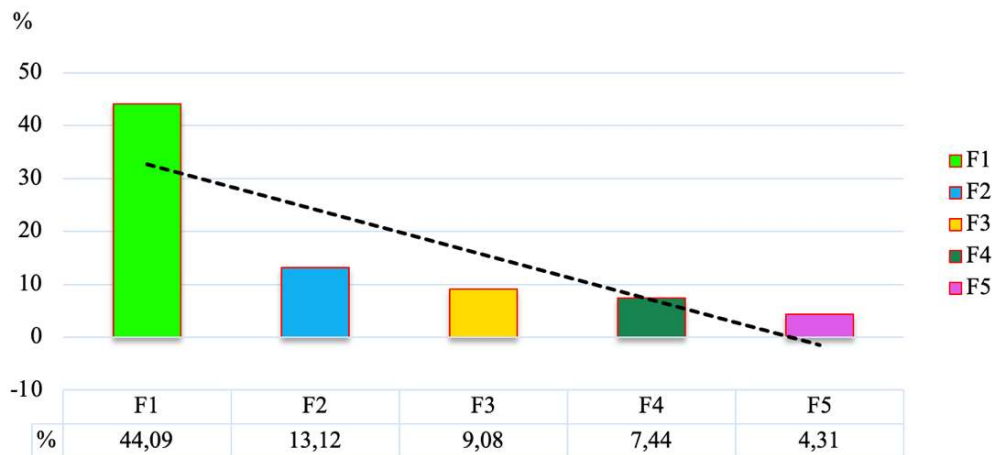
F2 "Resultative Self-Regulation Readiness" of the respondents reflects dependence of pre-competition readiness on the following positively loaded personal parameters: R (.626), GI (.669). A weightlifter's result in a fixed lifted weight plays a key role. F2 combined the scales of results with general internalization. GI is a reflection of a respondent's dominating activity accompanied by monotonous systemic work. A negatively loaded parameter of emotional excitation (-.578) also evidences such content of the mental state. "Resultative

Self-Regulation Readiness” is not a mental state less important than the previous one and has the dispersion of (13.12%).

F3 “Expressive Self-Regulation Readiness” is characterized by one positively loaded scale ES (.673). F3 reflects emotional stability of the mental state of weightlifters’ self-regulation readiness. Emotional stability plays an important role in achieving victory. A sportsman can demonstrate high results during trainings at the stage of preparation, but it is important to control one’s emotions and be able to repeat the achieved result or even to excel it. “Expressive Self-Regulation Readiness” covers the dispersion (9.08%). We can state that experience in training and self-discipline leads to good results in the formation of the mental state of self-regulation readiness.

F4 “Processual Self-Regulation Readiness” of the respondents combined the positively loaded scale Process (.609) and the negatively loaded scale “Difference between Self-Esteem and Aspirations” (-.504). It can be explained by the fact that orientation towards the process before competitions is important, since it makes a weightlifter follow a scheduled algorithm or an expected scenario of the course of events. “Processual Self-Regulation Readiness” has the dispersion of coverage (7.44%).

F5 “Cognitive Self-Regulation Readiness” of the respondents shows dependence of a pre-competition mental state on one positively loaded scale “Awareness of Expected Events” (.523). Obviously, awareness of future events adds a pragmatic component to a sportsman’s performance. Pragmatism also allows weightlifters to perform successfully orientating themselves towards other participants of interaction. Timely determination of weight for lifting sometimes plays a crucial role in a final trial. “Cognitive Self-Regulation Readiness” has the least dispersion (4.31%). F5 closes the factor structure of the respondents’ dominating mental states. The other factors were not examined since the share of their loading is insignificant and equals .907. The obtained five factors (78.04%) constitute the factor structure of mental states of weightlifters’ self-regulation readiness (Fig. II).



Note: ----- – trend line; F1 – Meaning-of-Life Self-Regulation Readiness; F2 – Resultative Self-Regulation Readiness; F3 – Expressive Self-Regulation Readiness; F4 – Processual Self-Regulation Readiness; F5 – Cognitive Self-Regulation Readiness.

Figure II. Factor structure of mental states of the weightlifters’ self-regulation readiness

We present the correlation matrix of interdependence of dominating factors of the respondents’ self-regulation readiness (Tabl. 4).

Table 4. Correlation matrix of the respondents’ self-regulation readiness (n=136)

Factors	CCF (F1)	PCF (F2)	ECF (F3)	ICF (F4)	KCF (F5)
MSR (F1)	1.000	.321**	-.096*	.037	.082*
RSR (F2)	.321**	1.000	.081*	-.027	.097*
ESR (F3)	-.096*	.081*	1.000	.044	.035
PSR (F4)	.037	-.027	.044	1.000	.101*
CSR (F5)	.082*	.097*	.035	.101*	1.000

Note: MSR (F1) – Meaning-of-Life Self-Regulation Readiness; RSR (F2) – Resultative Self-Regulation Readiness; ESR (F3) – Expressive Self-Regulation Readiness; PSR (F4) – Processual Self-Regulation Readiness; CSR (F5) – Cognitive Self-Regulation Readiness** – p≤.01; * – p≤.05.

Analysis of the correlation matrix of the respondents' self-regulation readiness showed that the correlation of MSR (F1) and RSR (F2) (.321; $p \leq .01$) is the most significant. There are also three significant correlations in three factors: MSR (F1); RSR (F2) and CSR (F5). We determined that F1, F2 and F5 are the most dependent factors. We can state that the least dependent factor is PSR (F4) with one correlation (.101; $p \leq .05$). We assume that F4 "Processual Self-Regulation Readiness" is the least controlled mental state, and, therefore, the most dangerous one. Processual readiness may prevent sportsmen from showing their decisiveness, well-thought risk and gain a victory. Therefore, it is dangerous. We can summarize that "Meaning-of-Life Self-Regulation Readiness" and "Resultative Self-Regulation Readiness" are the most important factors in the factor structure of dominating mental states of weightlifters' self-regulation readiness before competitions.

Discussion

There is a lack of empirical studies examining content parameters and the essence of mental states of weightlifters' self-regulation readiness for competitions. At the same time there are studies which are valuable in the context of our research. They substantiate and empirically prove that weightlifters' objective self-evaluation of their current state allows setting serious tasks for sportsmen and makes it possible to evaluate their potential critically. Critical evaluation of their potential is related to weightlifters' ability to recover physical and mental resources quickly and maintain their current mental state (Tverdun & Galashko, 2018). The suggested correlation pleiad (see Fig. II) of interrelations between weightlifters' self-esteem and personal qualities proves that self-esteem is a central formation of weightlifters' self-regulation activity unlike the level of their aspirations. But it does not reduce the importance of a sportsman's aspirations and their desire to achieve the highest results. At the same time, the ability to maintain and regulate an active mental state (Tverdun & Galashko, 2018) and, as it is shown in our research, to have one of the dominating mental states of self-regulation readiness (see Tabl. 3) have much in common. F4 "Processual Self-Regulation readiness", considered as the least controlled and, at the same time, a dangerous mental state, proves that this state is closely related to a reduced ability of weightlifters to maintain the mental state of activeness.

In particular, mental states of expecting a victory were examined in the sample of football-players (Popovych et al., 2019b), significance of the dominating mental state F1 "Value and sense self-regulation of a victory" was determined and sportsmen's meaning-of-life and value-based orientations were considered very important. These characteristics contributed to the formation of the main dominating state. We found that F1 "Meaning-of-Life Self-Regulation Readiness" is a key factor in weight-lifters, and the parameter General Awareness of Life (GAL) is one of the most loaded parameters (.609). Comparison of sport studies on representatives of team and individual sports allowed paying attention to a self-regulation component in achieving the highest results in sport competitions on the whole.

The research on personal factors of weightlifters' mental readiness for achieving high competition results (Babayan, 1984) reveals that mental readiness has an integral structure combining aspirations, confidence in achieving success and activeness in perfect movement operations. This integral structure resembles the factor structure of mental states of weightlifters' readiness for competitions (see Fig. II). But in the suggested factor structure there is clear differentiation of "integral structure" emphasized by A. Babayan (1984). At the same time, the researcher paid much attention to weightlifters' prospective and stage aspirations, and self-esteem is not mentioned apart from the cases of operational modelled situations (Babayan, 1984). The first hypothesis was proved – it was empirically determined and argumentatively substantiated that a weightlifter's self-esteem is a key parameter of self-regulation of a sportsman who strives for a victory. Self-esteem is an accumulating mental and psychological formation with high assimilation ability, i. e. it is stable and hardly undergoes fast forming impacts. We can assume that purposeful work of a team's psychologist aimed at weightlifters' self-esteem, self-control and self-regulation ability can be that latent psycho-emotional resource which will increase a sportsman's self-regulation readiness that can ensure high expected awards.

The second hypothesis was also confirmed. We can state that individual-typological parameters which relevantly reflect the research subject have a prevailing number of significant correlations: self-esteem – nine and the level of aspirations – six. This scientific fact is especially important in individualization of psycho-emotional training of weightlifters at the stage of specialized basic training. It is reasonable to pay attention to the research of O. Tovstonoh (2012) in the context of individual-typological parameters. The author investigated anthropometric indexes in order to improve technical training as a pre-condition for achieving a high sport result. The determined individual-typological parameters constitute mental states of weightlifters' readiness for achieving victory. We can summarize that combination of individual psycho-emotional training and technical training at the stage of specialized basic training will contribute to achievement of victory.

Conclusions

1. We state that Self-Esteem (SE) has nine (the largest number) of significant correlations ($p \leq .05$; $p \leq .01$) with personal qualities and has high operational ability to ensure long-lasting successful sporting activity of a weight-lifter.

2. The factor structure of mental states of weightlifters' self-regulation readiness for competitions was presented. The basis of the structure is five main factors (78.04%). The key factors are: F1 "Meaning-of-Life Self-Regulation Readiness" (44.09%) and F2 "Resultative Self-Regulation Readiness" (12.13%). The following factors are: F3 "Expressive Self-Regulation Readiness" (9.08%), F4 "Processual Self-Regulation Readiness" (7.44%) and F5 "Cognitive Self-Regulation Readiness" (4.31%).

3. We established that F1 "Meaning-of-Life Self-Regulation Readiness" is a mental state which can be a pre-condition for high sport achievements and for fatal disappointments. We determined that F4 "Processual Self-Regulation Readiness" is the least controlled mental state that can be dangerous in the context of orientation towards final victory.

4. The determined parameters and correlations of self-esteem and aspirations are important for weightlifters' individual psycho-emotional training at the stage of specialized basic training.

5. We confirmed the hypotheses, achieved the purpose and established important scientific facts which should be operationalized into weightlifters' training process.

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