

Research on the types of pre-game expectations in the athletes of sports games

IHOR POPOVYCH¹, VADYM ZAVATSKYI², OKSANA TSIUNIAK³, PAVLO NOSOV⁴,
SERHII ZINCHENKO⁵, VADYM MATEICHUK⁶, YURII ZAVATSKYI⁷, OLENA BLYNOVA⁸

^{1,8}Department of General and Social Psychology, Kherson State University, UKRAINE

²Department of Social Psychology and Social Work, East Ukrainian National University named after V. Dal, UKRAINE

³Department of Pedagogy of Primary Education, Vasyl Stefanyk Precarpathian National University, Ivano-Frankivsk, UKRAINE

⁴Navigation and Electronic Navigation Systems Department, Kherson State Maritime Academy, UKRAINE

^{5,6}Ship Handling Department, Kherson State Maritime Academy, UKRAINE

⁷Department of Human Health and Physical Education, East Ukrainian National University named after V. Dal, UKRAINE

Published online: January 31, 2020

(Accepted for publication: December 22, 2019)

DOI:10.7752/jpes.2020.01006

Abstract:

The purpose of the article is to study the types of expectations that have formed within athletes of Sports Games before competitions. The individuals under study are football players, mini-football players, handball players and volleyball players, women-volleyball players of sports teams participating in tournaments of different difficulty levels (n = 342, ages 14-38). The study presents standardized questionnaire tests, socio-metric type expectometric techniques, content analysis and cluster analysis of k-means. Types of athletes' pre-game expectations of are an important component of sports, competitive activity in game sports. Understanding types of athletes' pre-game expectations by the coaching staff allows operationalizing the tasks decision of tactical and technical preparation of the team for the game, strategic preparation of the team during the tournament.

The aim is to study the types of athletes' pre-game expectations of sports games directly before the game.

Research Methods: standardized questionnaire tests, expectometry, content analysis, cluster analysis of k-means. The cluster analysis defines four types of athletes' pre-game expectations: realistic-valuable (RVT), passive-moderate (PMT), unrealistic-pragmatic (UPT) and active-moderate (AMT).

The results obtained could be significant for coaching staff, sports directors, anyone involved in coaching and team management, including football, mini-football, handball and volleyball, as well as researchers in the field of psychology and pedagogy of physical education and sports.

Key words: types of expectations in sports, mini-football, football, handball, volleyball, sports games.

Introduction

The research actuality of types of athletes' pre-game expectations of team games sports is accompanied by set of factors of external and internal content. External factors are the tournament position of the team, tasks (objectives) for the season, tactics and strategy of calculating the resources of the team in achieving the maximum result, which are determined by the importance of internal factors – the moral and psychological climate of the team, the physical and psychological readiness of the players to the tournament, the mental state of athletes and the ability to perform coach instructions for the game, the ability to achieve the intended result. The effectuation of aforementioned set of factors allows you to occupy prize-winning places, to solve any tournament task, for example, to take place not lower than specified or stay in the highest division (league) for the next season. There are studies that have established and substantiated that psychological compatibility, performance, satisfaction, and other components are determined by individual psychological characteristics, mental states and value orientations in pre-game sports activities (Ferrari, Borges, Teixeira & Maroques, 2018; Erdogan, Zekgoglu & Dorak, 2014). The connection and effect of individual and typological properties of athletes on the content and the result of the competition is undeniable. Confirmation is found in the study of individual and typological characteristics of football players (Polishkis et al., 1998). The researchers have established correlation of the components of motivation, self-regulation, self-control, emotional stability with efficiency, reliability and

achievement of results. It is of scientific interest to study motor activity of players of professional football teams (Lebediev et al., 2019). Analyzed of formal going approaches to determination periods of intuitional behavior of during supernumerary situations in other areas (Nosov et al., 2019).

Complex of individual-typological features, motivational components, value orientations, expectations regarding the previous course of events of sportsmen in sports games requires researchers to empirically solve the appointed problem and substantiate the types of expectations about specific expected competition. The study of athletes' pre-game expectations anticipates the definition of substantive psychological parameters, properties of the phenomenon under study and the identification of key types of pre-game expectations. It is scientifically proven that typology provides for any scientific research systematization, regulation and growth of the knowledge gained (Lloyd, 1957). One of the alternates for researching types of athletes' pre-game expectations is distinguished in our empirical study.

Nervous-mental stress, moral and volitional efforts of athletes differ significantly during training, the pre-game period and in the action. But all these components have an essential impact on the behavior of athletes and performance of the expected game. Usually the ability to cope with oneself, the ability to make "your body and mind" ready for the future game is more important than the game process itself. In part, you can hear remarks from losing athletes that this is psychological defeat we received before the competition started. Such perspective of appointed problem actualizes research of types of pre-game expectations. There are studies that have established and substantiated that emotions that provide balancing function have significant effect on positive athletic performance. The work of such function is clearly noticeable within athletes before the competition, when it is necessary to get ready for intense physical and psychological work (Yakovlev, Babushkin & Apokin, 2015; Bulynko, 2016). An experienced psychologist-trainer on pre-game limbering-up can visually diagnose the mental state of every athlete. Accordingly, the approximate type of pre-game expectations, psychological preparedness for the game, which is about to begin is determined. Therefore, the local, tactical setting of even an individual athlete for the game, but timely, allows you to make extremely important correctives that can pivotally affect the result of sports game.

Authors under types of pre-game expectations see the construction of abstract theoretical models (types) from relevantly-defined and relevantly-founded integral set of parameters that affect the expected result in sports gaming activity.

Determination of substantive features of the types of pre-game expectations and the levels of the studied parameters that formed them, understanding their features and determinants, will provide solution of the problems of psychological and physical training of athletes of sports games. It has an influence upon effectiveness of management of team pre-game emotional state. In turn, adequate management of the emotional pre-game conditions of athletes will increase the efficiency of training, competitive and sports activities of the team. It is known that the mental state of preparedness for the competition is characterized by positive adequate expectations of victory or the highest possible result (Popovych & Blynova, 2019; Popovych et al., 2019a; 2019b; 2019c).

Hypothesis. The authors presume that 1) the types of pre-game expectations depend on the levels of meaningful parameters of social expectations and individual-typological characteristics of team athletes; 2) types of pre-game expectations of non-contact sport games (volleyball) and contact sport games (football, mini-football, handball) are significantly different.

Purpose. Determine the types of pre-game expectations of athletes of sports games directly before the game.

Material and methods

Participants. The players of the teams "Crystal" (Kherson), "Tavriia" (Simferopol, based in Beryslav, Kherson region), "Energiia" (Nova Kakhovka) from the championship of Ukraine, second league, group "B"; "Tavriia" (Novotroitske), "Avangard" (Kherson), "Spartak" (Kherson) – teams of the Kherson region football championship participated in the study. The average age of football players is 24.9 years. The sample consisted of 108 individuals, all male. The study was attended by mini-football players of the first league teams of the Kherson region mini-football association: "Joker", "Yug-svet", "Yednist", "Joy Travel"; the major league of the Kherson region mini-football association: "Wezom", "Phoenix", "Riativnyk"; extra-league of Ukraine mini-football association: "Prodeksim" (Kherson). The average age of aforesaid participants under study was 25.8 years. The sample consisted of 138 individuals, all male.

The following sample aggregate consisted of female handball teams of different age groups, the total number – 38 people, all female: the older age group (19-27 years) – 16 people; middle group (16-18 years) – 11 people; younger group (14-17 years) – 11 people. Female handball players are representatives of the regular staff of the women's handball club "Dniprianka" (Kherson), which plays in Women's Super League Handball Championship of Ukraine.

The fourth sample aggregate consisted of representatives of women's and men's volleyball teams participating in regional competitions: "Locomotyv" (Kherson), "KDU" (Kherson), "Vhoru" (Kherson), "Spartak" (Kherson), "X-40" (Kherson). The average age was 23.8 years. The sample consisted of 36 men and 22 women. Participation in the study was voluntary. The research is conducted according to ethical standards of committee on the rights of experiments of Helsinki declaration of 2013 (WMA Declaration of Helsinki, 2013).

Organization of research. The statement section, empirical data collection and initial processing by the organizers were conducted during December 2018 and until May 2019. Researchers chose team games that were of fundamental tournament value; sometimes it was cup games, team games that are side by side in the tournament (score) table. Permission for collection of empirical data, communication with athletes before the game and empirical study conducting were received from administrations of sports teams.

Procedures and instruments. In order to establish the properties of expectations before the game and the realization of expectations after the game, a method of content analysis, which is relevantly allows you to determine the essence of the phenomenon under study, is applied. The methods "Expected situation" (Popovych, 2019) and "Realization of expectations" (Popovych, 2019) were used to determine the characteristics of social expectations: internality/externality (IE_p), activeness/passiveness (AP_p), openness/closeness (OC_p), adequacy/inadequacy (AI_p). Tests with standardized questionnaires were used to measure the parameters of athletes.

The questionnaire "Level of social expectations" (LSE) (Popovych, 2019): the level of social expectations of personality (LSE_p), the level of awareness of the expected events (LAE_p), the level of the expected attitude towards the participants of interpersonal interaction (LEA_p), the level of the expected performance (LEP_p). The questionnaire "Level of subjective control" ("LSC") (Rotter, 1966): general internality (GI), internality in the area of achievements (IA), internality in the area of failures (IF), internality in relationships (IR), internality in the area of labor relations (ILR), internality concerning health and illness (IHI). The questionnaire Ten mental emotional states: interest (I), joy (J), surprise (S), grief (G_r), anger (A), disgust (D), contempt (C), fear (F), shame (S_h), guilt (G) and Parameter 11 – the coefficient of self-feeling (C_s) were determined by the method for examining emotions "Differential Emotions Scale IV-A" ("DES") (Izard, 1993). The responses were evaluated by means of the unipolar semantic differential scale, its value was within the range of 1 (entirely inappropriate) and 4 (absolutely right). The indexes of reliability, obtained by means of Cronbach's alpha, were: $\alpha_{LSE} = .801$; $\alpha_{LSC} = .761$; $\alpha_{DES} = .784$. The coping-test "Way of Coping Questionnaire" ("WCQ") (Lazarus & Folkman, 1988, adapted by T. Kriukova, O. Kuftiak, M. Zamyshliaieva, 2004) was used to determine coping-strategies – eight ways to overcome challenges in different areas of mental activity: confrontation (C), distancing (D), self-control (SC), seeking social support (SSS), accepting responsibility (AR), avoidance (A), planning to solve a problem (PSP), positive overestimation (PO). The responses were evaluated by means of the unipolar differential scale, its value was within the range of 0 (never) and 3 (often). The sociometric method "Expectometry" (Popovych, 2017): the coefficient of expectations (CE), expectometric status (ES), the level of adequacy of self-expectations (LS), the coefficient of reciprocally expected choices (CC) – the reliability coefficient obtained by means of Cronbach's alpha statistics was $\alpha = .711$. The dichotomous scale was used, Cronbach's alpha was $\alpha = .843$. The indexes of reliability of the methods used and the tests of Cronbach's alpha were within sufficient (.7) and high levels (.9).

Statistical analysis. Statistical processing of the empirical data was performed by means of the statistical program "SPSS" v. 23.0 and «MS Excel». Spearman's correlation coefficients (rs) were used to find and determine the correlation between the indexes obtained. To determine the homogeneity of empirical data, factor analysis was used. The determination of the types of athletes' pre-game expectations was carried out by cluster analysis using the k-means. To prove the statistical difference between the groups the criterion ϕ of Fisher's angle-transformation is applied. Arithmetic mean value of minimum (min), maximum (max), parameters (M) and mean-square deviation (SD) were calculated. The differences between the values of the variables at the level $p \leq .05$ are considered statistically significant.

Results and Discussion

Research of psychological content parameters and properties of pre-game expectations within athletes of sports games

The pilot study ($n = 24$) selected relevant set of psychological substantive parameters and methods for determining it. Using above-listed standardized test methods, the psychological parameters of pre-game expectations of football players, mini-football players, handball players, male volleyball players and female volleyball players were determined. The obtained results of the parameters under study is evaluated, based on the scales minimum (min), maximum (max), arithmetic mean (M) and mean-square deviation (SD), which are presented in Table 1.

Table 1. The results of psychological parameters of pre-game expectations within athletes of sports games (n = 342)

Scale	Minimum, min	Maximum, max	Arithmetic mean, M	Mean-square deviation, SD
“LSE”				
LSE_p	41.00	93.00	70.56	12.50
LAE_p	10.00	24.00	17.92	3.19
LEA_p	10.00	19.00	14.88	1.82
LEP_p	19.00	53.00	37.79	8.39
“LSC”				
GI	136.00	251.00	197.69	23.55
IA	28.00	71.00	55.18	7.88
IF	20.00	73.00	48.92	8.92
IR	19.00	56.00	39.36	7.18
ILR	26.00	53.00	36.77	5.71
IHI	5.00	29.00	18.90	4.61
“DES”				
I	3.00	12.00	7.51	2.40
J	3.00	12.00	10.06	2.37
S	3.00	12.00	6.86	2.60
G_r	3.00	6.00	3.33	.79
A	3.00	10.00	6.47	1.61
D	3.00	6.00	3.13	.62
C	3.00	10.00	3.70	1.61
F	3.00	9.00	3.98	1.66
S_h	3.00	9.00	4.29	1.70
G	3.00	8.00	3.61	1.32
C_s	.90	2.90	1.79	.51
“WCQ”				
C	16.67	75.00	48.32	20.44
D	12.50	83.33	52.47	25.18
SC	16.67	83.33	71.59	15.74
SSS	12.50	71.43	40.11	20.77
AR	16.67	83.33	53.70	21.79
A	12.50	83.33	52.75	26.72
PSP	12.50	83.33	61.75	21.77
PO	12.50	71.43	48.66	18.45
“Expectometry”				
CE	.06	.89	.45	.15
ES	.00	.56	.19	.12
LS	.20	1.25	.74	.23
CC	.00	.33	.09	.08

According to the methodological plan of our research, the content-analytical method “Expected situation” was carried out immediately before the game. Then after the game was completed, the content-analytical method “Realization of expectations” was conducted. The “Expected situation” made it possible to envisage the behavior and mental emotional state of athletes just before the game with a few sentences. The number of sentences was not regulated due to the peculiarities of the sports situation.

Of key importance was the psychological interpretation of respondents ‘cognitive and emotional-value manifestations in the actual pre-game expectation situation. Descriptions of other situations and some of the athletes’ thinking beyond the subject of the study were disregarded (n = 342). After task accomplishment, the researchers described the realization of their expectations, that is, interpreted the reproduction of mental emotional state in social reality.

The results were evaluated based on the scales minimum (min), maximum (max), which made it possible to determine the amplitude of the study parameters. The arithmetic mean (M) and the mean-square deviation (SD) are given in Table 2.

Table 2. Means and mean-square deviations of scales of properties of pre-game expectations within athletes of sports games (n=342).

Scale	Minimum, min	Maximum, max	Arithmetic mean, M	Mean-square deviation, SD
IE _p	.10	.87	.51	.20
AP _p	.10	.85	.50	.20
OC _p	.20	1.10	.72	.23
AI _p	.20	1.25	.74	.23

The results of content-analysis allowed us to determine the properties of pre-game expectations within athletes of sports games. It was found that the prevailing state of internality of pre-game expectations – in 30.09% of athletes, the state of externality of pre-game expectations – in 20.45%, the activity of pre-game expectations – in 35.09% of athletes, the state of passivity of pre-game expectations – in 22.56%, publicity in 44.09%, the closeness of pre-game expectations– 18.95%, adequate pre-game expectation – in 32.05% and inadequate expectation – in 33.06%.

There were manifestations of polarity of pre-game expectations – at 11.10% and ambivalence of pre-game expectations – at 9.10%. Quite interesting (in the scientific field) is the prevalence of inadequate property of pre-game expectation over adequate, we explain it with intense emotional pre-game and post-game emotional states. The second technique was performed after the game, which allowed establishing the adequacy of pre-game expectations.

Considering the age, content special features of the sample, the uniqueness of the situation under study, we believe that the results obtained objectively reflected the specified dimension of the expected social reality and that they are reliable and trustworthy. Methodologically substantiated we consider the combination of content analysis with the method of “Expectometry”, which made it possible to measure qualitatively the phenomenon under study.

We believe that integrated complex of 37 psychological content parameters is relevant and methodologically substantiated, which qualitatively reflects the subject of research on the pre-game expectations of athletes. Let us move on to the next stage of empirical research – determining the optimal number of clusters and clustering the types of pre-game expectations within athletes of sports games.

Research and characteristic of types of athletes’ pre-game expectations by cluster analysis

Cluster analysis is statistical procedure that performs multidimensional classification of data that contains information about sample of objects, that is, it arranges the objects into relatively homogeneous groups (Lloyd, 1957). The purpose of applying k-means cluster analysis is to combine the psychological meaningful parameters of expectations by individual factors into statistical homogeneous cluster groups.

The key task of the method is to divide n measurements into k clusters so that each dimension of the athletes under study belongs to a cluster with the mean closest to it, thus minimizing the sum of the squares of distances between each observation and the center of its cluster, that is, the function. The simplicity and speed of processing a large number of observations (n = 342) prompted us to determine the types of athletes’ pre-game expectations to opt for cluster analysis using the k-means method. This made it possible to logically integrate the parameters under study of pre-game expectations into organized complexes of psychological parameters, i.e. visual taxonomies. These arguments prompted the researchers to opt for cluster analysis using the k-means clustering method.

Cluster analysis allowed us to come to likely significant decision. We define the clustering algorithm and the stages of cluster analysis. Preliminary stage: empirical data obtained (n=342). Second stage: preparation of data for clustering. The choice of the indicators under study (according to which clustering was carried out) was effectuated methodologically competent. Selected list of indicators under study for clustering: the level of social expectations of personality (LSE_p), general internality (GI), the coefficient of self-feeling (C_s), the planning to solve a problem (PSP), the coefficients of expectations (CE), indicators of social expectations properties by dichotomous scales: internality / externality (IE_p), activeness / passiveness (AP_p), openness / closeness (OC_p), the adequacy / inadequacy (AI_p).

We consider the selected list of nine attributes to be relevant in defining the phenomenon under study and objectively defining the substantive features of the research subject. The selected set of features identified the substantive peculiarities of the pre-game expectations of athletes, so we consider these parameters significant. The level of social expectations is a key attribute that determines the athlete’s pre-game expected regulatory ability and integrates external and internal content factors, closing personal and social circuits. Thus, four signs characterize the socio-psychological determinants of athletes’ pre-game expectations and the next four signs define pre-game expectations as an important factor in constructing social reality by personality.

That is, determined the ability of the athlete to put the plan for the game into effect and to realize coach’s setting. The chosen methodology of cluster analysis allowed taking into account significant factors of empirical research. Third stage: moving to the assurance that the chosen method is correct and appropriate. Fourth stage: distribution of n measurements of the individuals under study on k clusters so that each measurement of one

under study belongs to the cluster with the mean closest to it. This ensured the fulfillment of the basic requirement – the minimum admissible number of measurements of the respondents in the cluster – should not be less than $n \geq 41$.

The randomness and homogeneity of the sample aggregate were further determined. Applied “SPSS” v. 23.0 and homogeneity is established due to the reduction of proportionality by factor analysis. The criterion for an adequate sample aggregate of Kaiser-Meyer-Olkin (KMO) is equal to 759 (it is advisable to apply cluster analysis when above .5). The Bartlett sphericity criterion was found to be significant ($p < .001$). It is only at this point that we come to valid application of cluster analysis. Applying series of pilot tests, the optimal number of clusters is set – four. The center of the first cluster defines the level of social expectations (LSE_p), the dominant parameters became centers of the next three clusters. The initial cluster centers are presented in Table 3.

Table 3. Initial centers of clusters (n = 342)

Parameters	Cluster 1(n=62)	Cluster 2(n=74)	Cluster 3(n=54)	Cluster 4(n=152)
LSE _p	81.00	79.00	43.00	58.00
GI	231.00	156.00	151.00	215.00
C _s	2.30	1.90	2.90	1.20
PSP	91.43	16.67	71.43	12.50
CE	.43	.85	.54	.22
IE _p	.75	.75	.10	.25
AP _p	.75	.70	.10	.50
OC _p	1.00	1.10	.60	1.10
AI _p	1.00	1.10	.60	1.10

Note: the minimum distance between the initial centers is 62.77.

A key feature of cluster analysis of k-means is that as a result of optimization, differences between the objects of the same cluster become inconsiderable, and different clusters have significant differences. Establishing the initial centers of clusters is an indispensable condition for determining the minimum differences between the indicators under study of one cluster. Accordingly, the determination of final centers of clusters demonstrates the lines (limits) of set of indicators under study that are assigned to a particular cluster. We display the final centers of clusters in Table 4.

Table 4. The final centers of clusters (n=342)

Parameters	Cluster 1(n=62)	Cluster 2(n=74)	Cluster 3(n=54)	Cluster 4(n=152)
LSE _p	70.00	68.00	67.00	73.00
GI	206.00	174.00	174.00	214.00
C _s	1.80	1.80	1.90	1.70
PSP	83.44	24.32	68.17	27.08
CE	.45	.45	.44	.44
IE _p	.52	.45	.40	.56
AP _p	.52	.45	.46	.54
OC _p	.70	.74	.66	.75
AI _p	.70	.75	.66	.77

We characterize the obtained clusters, which are personification of visual taxonomy. The sequence of the indicators under study point out that the parameter “level of social expectations” in the priority for us is vertical dimension – psychological determinants of pre-game expectations of the athlete, and then the indicators under study of pre-game expectations as a factor in making social competitive reality by an athlete. The analysis of the obtained results was carried out taking into account psychological, social-personal and interpersonal characteristics. We characterize the obtained clusters, taking as a basis arithmetic means and mean-square deviations of the parameters under study.

Cluster 1 (type I) combines the average (middle) sample group by quantity (n = 62). Individuals under study of this type are provided with high level of social expectations (LSE_p, 70.0-81.0), medium and high meanings of subject control (GI, 206.0-231.0), average level of state of health (C_s, 1.80-2.30), high level of problem-solving planning (PSP, 83.44-91.43), average level of the expectation coefficient (CE, .43-.45), medium level of internality (IE_p, .52-.75), average activity level (AP_p, .52-.75), medium and high levels of openness (OC_p, .70-1.00), medium and high levels of expectations adequacy (AI_p, .70-1.00). Important characteristics of this type of pre-game expectations are those that attribute it to high level of expectations and, in terms of content features, the expectations of such athletes are internal, active, open and adequate.

Cluster 2 (type II) also belongs by quantity to the average sample group ($n = 74$). Individuals under study of this type are provided with high level of social expectations (LSE_p , 68.0-79.0), low levels of subject control (GI , 156.0-174.0), average level of state of health (C_s , 1.80-1.90), low level of problem-solving planning (PSP , 16.67-24.32), average and high level of the expectation coefficient (CE , .43-.85), medium level of internality (IE_p , .45-.75), average activity level (AP_p , .45-.70), medium and high levels of openness (OC_p , .74-1.10), medium and high levels of expectations adequacy (AI_p , .75-1.10). Important characteristics of this type of pre-game expectations are those that attribute it to high level of expectations, while overall low internality and low levels of problem-solving planning modify the desired results of such athletes, unfortunately negative.

Cluster 3 (type III) consolidates the smallest group of individuals under study – total number ($n = 54$), but meeting the requirements of the minimum number of variants. The subjects of this type are provided with low and partially average levels of pre-game expectations (LSE_p , 43.0-67.0), low level of subject control (GI , 156.0-174.0), medium and usually high levels of state of health (C_s , 1.90-2.90), average level of problem-solving planning (PSP , 68.17-71.43), average level of the expectation coefficient (CE , .44-.54), high level of externality (IE_p , .10-.40), high level of passiveness (AP_p , .10-.46), average level of openness (OC_p , .60-0.66), medium level of expectations adequacy (AI_p , .60-0.66). Important characteristics of this type of pre-game expectations are those that attribute it to low level of expectations with low subjective control, with external and passive properties.

Cluster 4 (type IV) is the largest in number ($n = 152$). The subjects of this type are provided with an average level of pre-game expectations (LSE_p , 58.0-73.0), average level of subject control (GI , 214.0-215.0), average level of state of health (C_s , 1.20-1.70), low level of problem-solving planning (PSP , 12.50-27.08), low and average level of the expectation coefficient (CE , .22-.44), high level of internality (IE_p , .72-.76), medium level of activity (AP_p , .50-.54), medium and high levels of openness (OC_p , .75-1.10), medium and high levels of expectations adequacy (AI_p , .77-1.10). Important characteristics of this type of pre-game expectations are those that attribute it to the average level of expectations with low levels of problem-solving planning, with external and open properties.

It is important to note that clusters I and II combine a high level of pre-game expectations, and III and IV combine low and medium levels of pre-game expectations, and the following division is carried out by subject control and state of health. The typical feature of these clusters is internality, activity, openness and adequacy of pre-game expectations. Thus, clustering by k-means method demonstrated the original unification of the sample of individuals under study in four clusters and allowed to talk about four types of athletes' pre-game expectations.

Realistic-valuable type (RVT). The high level of pre-game expectations of individuals under study with high indicators of subject control and high level of problem-solving planning with medium and high expectations adequacy characterize agents of this type as an active core capable of resolving the course of the game.

Passive-moderate type (PMT). The high level of pre-game expectations of athletes with low indicators of subject control and low level of problem-solving planning give agents of this type characteristic of passive moderation. Representatives of this type clearly understand the model of the expected future, the desired image of victory, setting for the game but do not take decisively active position, but rather moderate.

Unrealistic-pragmatic type (UPT). The low and medium levels of pre-game expectations of individuals under study with low levels of subject control and medium level of problem-solving planning give agents of this type a weak link with the expected result but a significant level of pragmatism and too high externality.

Active-moderate type (AMT). The average level of pre-game expectations of individuals under study with average level of subject control, average level of problem-solving planning, and high level of internality of the expectations gives the agents of this type an active moderate position. The description of the clusters and the proposed types of pre-game expectations suggest that the first hypothesis is fulfilled. Successfully selected complex of content parameters under study, setting their levels is crucial in the formation and content load of types of athletes' pre-game expectations.

The complexes of indicators under study are obtained and analyzed. That is, the proposed taxonomies make it possible to assert that there are four types of pre-game expectations of athletes of sports games, which indicating the feasibility and practicality of such distribution. According to the researchers, the coach (who works with the team) will not experience difficulties before the game to differentiate players into four types of pre-game expectations and make final correctives. We show in Fig. 1 the structure of types of pre-game expectations of athletes of sports games.

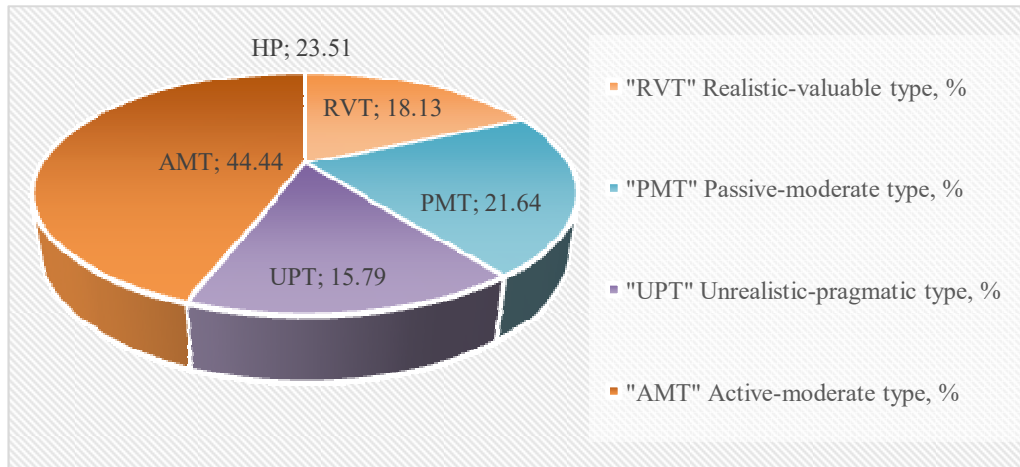


Figure 1. Structure of types of pre-game expectations of athletes of sports games.

Empirical results of the distribution of types of pre-game expectations of athletes in four groups under study (for convenience, groups are called sports games): football ($n_1=108$), mini-football ($n_2=138$), handball ($n_3=38$) and volleyball ($n_4=58$) are displayed in Table 5.

Table 5. Empirical results of the distribution of types of pre-game expectations of athletes with differences between groups ($n = 342$)

Types of pre-game expectations	Football group ($n_1=108$), %	Volleyball group ($n_4=58$), %	Fisher's criterion	Level of significance
RVT	18.40	18.25	0.68	$p \geq .05$
PMT	24.90	24.05	0.81	$p \geq .05$
UPT	14.10	14.15	1.01	$p \geq .05$
AMT	42.60	43.55	0.32	$p \geq .05$
Types of pre-game expectations	Mini footballgroup ($n_2=138$), %	Volleyball group ($n_4=58$), %	Fisher's criterion	Level of significance
RVT	19.30	18.25	1.11	$p \geq .05$
PMT	25.00	24.05	1.09	$p \geq .05$
UPT	13.15	14.15	0.81	$p \geq .05$
AMT	42.55	43.55	0.38	$p \geq .05$
Types of pre-game expectations	Handball group ($n_3=38$), %	Volleyball group ($n_4=58$), %	Fisher's criterion	Level of significance
RVT	20.00	18.25	1.08	$p \geq .05$
PMT	22.30	24.05	0.87	$p \geq .05$
UPT	15.05	14.15	0.80	$p \geq .05$
AMT	42.65	43.55	0.92	$p \geq .05$

The empirical results of the distribution of types of pre-game expectations of athletes of sports games show fairly even distribution that does not differ significantly from the general structure of types of pre-game expectations (see Figure 1). The best empirical indicators of the realistic-valuable (20.00%) and active-moderate (42.65%) types in the handball group ($n_3=38$) represented by the female sample. We assume that gender aspect may be key, but it requires additional research as it goes beyond our subject of study.

According to the second hypothesis, it is necessary to prove or disprove that the types of pre-game expectations of athletes of non-contact sports games (volleyball) and contact sports games (football, mini-football and handball) differ significantly. The differences between volleyball group ($n_4=58$) and football groups ($n_1=108$), mini-football ($n_1=108$) and handball ($n_1=108$), identified by the criterion ϕ of Fisher's angle-transformation, showed some differences that are not significant ($\phi_{emp.} = 0.32-1.11$; $p \geq .05$), which contradicts the second hypothesis.

The types of pre-game expectations of individuals under study RVT_s and AMT_s are key and able to ensure fulfillment of coach's setting for the game, obtaining the desired result. Therefore, the more players are agents of these types of expectations; the better is the course of event. The critical number of players in team with passive-moderate type of pre-game expectations, who have low level of problem-solving planning, do not allow the team to achieve the desired result. We consider it not reasonable to combine only players with RVT_s and AMT_s in the

team, as these athletes have high pre-game expectations, but the ways of achievement and means are diametrically opposed, which can lead to significant tensions and destabilization of team play.

Conclusions

1) Content-analysis reveals that within athletes of sports game stake preference internality of pre-game expectations – 30.09%, activity – 35.09%, openness – 44.09%. An insignificant prevalence of inadequate property (33.06%) over adequate (32.05%) was determined, which is consequence of excessively intense pre-game and post-game emotional state.

2) The chosen set of empirical indicators was combined into four clusters, which gave grounds to determine the following types of pre-game expectations: realistic-valuable type (RVT; 18.13%), passive-moderate type (PMT; 21.64%), unrealistic-pragmatic type (UPT; 15.79%) and active-moderate type (AMT; 44.44%). It is established that the types of pre-game expectations depend on the levels of meaningful parameters of social expectations and individual-typological characteristics of the team athletes, which confirms the first hypothesis.

3) The second hypothesis is disproved because the types of pre-game expectations of athletes of non-contact sports game (volleyball) and contact sports games (football, mini-football, handball), although they have differences that are defined by the criterion φ of Fisher's angle-transformation, but they are not significant ($\varphi_{emp.} = 0.32-1.11$; $p \geq .05$).

4) The results of the study may be of interest to the coaching staff, sports directors, anyone involved in the training and leadership of teams in sports games, in particular football, mini-football, handball and volleyball, as well as researchers in the field of psychology and pedagogy of physical education and sports.

5) The training of coaches of sports teams to recognize, diagnose the actual types of pre-game expectations, mental states of players is an important task of competent professional training and preparation for advanced training.

Conflict of Interest. The authors declare that there is no conflict of interest.

Acknowledgments

The research was conducted within the framework of the fundamental scientific and practical theme of the Department of General and Social Psychology of Kherson State University and the Department of Psychology of Lviv State University Internal Affairs, the state registration number is 0119U101096.

References:

- Bulynko, E. S. (2016). Features of the emotional state of athletes playing sports in the competitive period. *Applied sports science*, 1(3), 4-9. Retrieved from <https://elibrary.ru/item.asp?id=26538655>
- Erdogan, N., Zekgoglu, A. & Dorak, F. (2014). According to Handball Coaches, What Are The Psychological Factors That Affect The Performance of Athletes? *A Qualitative Study International Journal of Science Culture and Sport*, 2 (Special Issue 1):194-207 DOI 10.14486/IJSCS 89
- Ferrari, S. F., Borges, P. H., Teixeira, D. & Maroques, P. G. (2018). Impact of verbal instruction and demonstration methods on self-efficacy and motor learning in inexperienced handball players. *Journal of Physical Education and Sport*, 18(2), 816-820. DOI:10.7752/jpes.2018.02120.
- Izard, C. (1993). *The Differential Emotions Scale: DES IV-A; [a Method of Measuring the Meaning of Subjective Experience of Discrete Emotions]*. University of Delaware. N.-Y.: University of Delaware.
- Kriukova, T. L. & Kuftiak, Ye. V. (2007). The questionnaire of controlling (the adaptation of the methods WCQ). *Journal of an applied psychology specialist*, 3, 93-112. Retrieved from <https://www.twirpx.com/file/1656062/>
- Lazarus, R.S. & Folkman, S. (1984). *Stress, appraisal, and coping*. – N.-Y.: Springer Publishing Company, 1984. – 456 p.
- Lebediev, S., Beziazychnyi, B., Bulgakov, O., Stadnik, S., Khudiakova, V., Yefremenko, A., Zhurid, S. & Petrusenko, N. (2019). Analysis of motor activity of professional football team players in the Ukrainian first league. *Journal of Physical Education and Sport*, 19(1), 87-91. DOI:10.7752/jpes.2019.s1013
- Lloyd, S. (1957). Least square quantization in PCM's. *Bell Telephone Laboratories Paper*, 211-227.
- Nosov, P., Ben, A., Safonov, A., & Palamarchuk, I. (2019). Formal going approaches to determination periods of intuitional behavior of navigator during supernumerary situations. *Radio Electronics, Computer Science, Control*, 2(49), 140-150. DOI: 10.15588/1607-3274-2019-2-15
- Polishkis, M., Dashkevich, O. & Klesov, I. (1998). Lichnostnyye faktory effektivnosti i nadezhnosti sorevnovatelnoy deyatelnosti yunykh futbolistov. *Teoriya i praktika fizicheskoy kultury*, 2, 19-20. Retrieved from URL: <http://lib.sportedu.ru/press/fkvot/1998n2/p47-50.htm>
- 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), page 21. Retrieved from: <https://www.revistaespacios.com/a19v40n33/19403321.html>
- Popovych, I. S., Blynova, O. Ye., Bokshan, H. I., Nosov, P. S., Kovalchuk, Z. Ya., Piletska, L. S. & Berbentsev, V. I. (2019b). The Research of the Mental States of Expecting a Victory in Men Mini-football Teams. *Journal of Physical Education and Sport*, 19(4), 2343-2351. DOI:10.7752/jpes.2019.04355
- 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(3), 847-853. DOI:10.7752/jpes.2019.s312
- Popovych, I. S., Zavatskyi, V. Yu., Geyko, Ie. V., Halian, O. I., Zavatskyi, Yu. A. & Radul, I. H. (2019c). Research on the Structure, Variables and Interdependence of the Factors of Tourists' Mental States of Expectation for Leisure in Ukraine. *Revista ESPACIOS*, 40(37), page 22. Retrieved from: <https://www.revistaespacios.com/a19v40n37/19403722.html>
- Popovych, I. S. (2019). *Psychology of Social Expectations of Personality: Methodology, Theory and Practice*. Kherson: OLDI-PLUS.
- Psychological diagnostics. *Methodology: level of personality claims*. Retrieved from <https://sites.google.com/site/test300m/16pfa>
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement: Psychological Monographs. *General and Applied*, 80(1), 1-28.
- WMA Declaration of Helsinki – *Ethical Principles for Medical Research Involving Human Subjects*. Retrieved from <http://www.wma.net/es/30publications/10policies/b3/17c.pdf>
- Yakovlev, B. P., Babushkin, G. D. & Apokin, V. A. (2015). Psychological factors contributing to the implementation of preparedness in competitive conditions. *Theory and practice of physical culture*, 11, 84-86. Retrieved from <https://elibrary.ru/item.asp?id=24842314>