

DOI:10.2478/tperj-2020-0010

Discovering the anxiety level of a basketball team using the SCAT questionnaire

Ioan Sabin SOPA¹, Marcel POMOHACI²

Abstract

Background: The level of anxiety can influence the performance obtained by the group and can also affect the communication and cohesion of the team. Recent studies proved that a high level of anxiety could lead to failure in sports performance and disturbance in group relationships.

Aim: The study aimed to analyze and reduce the level of anxiety in a basketball team U18 of CSM Medias, following the idea that reducing the personal anxiety level of each player can lead to better group cohesion and performance.

Methods: The research methods used in our experiment were the SCAT questionnaire and psychological therapy, that analyzed the level of anxiety in sports competition.

Results: The results of the investigation showed that after discovering the initial level of anxiety (22.42), using the SCAT questionnaire, and by performing several sessions of psychological therapy and group therapy, we managed to reduce the anxiety level at the final examination (20.83). Also, we achieved an improvement in group cohesion and communicational level.

Conclusions: Anxiety level can affect group performance and team results; our study highlighted the idea that the early discovery of malfunction in group collaboration and also in individual anxiety levels can lead to better team performance and also improve the cohesion and communication level.

Key words: *competition anxiety, group cohesion, sports psychology.*

Rezumat

Fundamentare: Nivelul anxietății poate influența performanța obținută de grup și poate afecta comunicarea și coeziunea echipei. Studii recente au demonstrat că nivelul ridicat de anxietate poate duce la eșec în sportul de performanță și la perturbarea relației de grup.

Scop: Studiul a avut ca scop analizarea și reducerea nivelului de anxietate la o echipă de baschet U18 a CSM Medias, urmând ideea că reducerea nivelului de anxietate personal al fiecărui jucător poate duce la o mai bună coeziune de grup și performanța echipei.

Metode: Metodele utilizate în experimentul nostru a fost chestionarul SCAT și terapia psihologică, prin care am analizat nivelul de anxietate înainte de competiția sportivă.

Rezultate: Rezultatele investigației au arătat că după descoperirea nivelului inițial de anxietate (22.42) folosind chestionarul SCAT și efectuarea mai multor sesiuni de terapie psihologică și terapie de grup, am reușit să reducem nivelul de anxietate la examinarea finală (20.83). De asemenea, am reușit să îmbunătățim nivelul coeziunii grupului și a nivelului comunicațional.

Concluzii: Nivelul de anxietate poate afecta performanța grupului și rezultatele echipei; studiul nostru a evidențiat ideea că descoperirea timpurie a deficiențelor în colaborarea de grup și, de asemenea, și descoperirea nivelului anxietății individuale pot duce la performanțe mai bune ale echipei și, de asemenea, la îmbunătățirea coeziunii și a nivelului de comunicare.

Cuvinte cheie: *anxietatea competițională, coeziunea de grup, psihologia sportivă.*

¹ Lecturer PhD, "Lucian Blaga" University Sibiu, Romania, e-mail: sabin.sopa@ulbsibiu.ro

² Associate Professor PhD, "Lucian Blaga" University Sibiu, Romania, e-mail: puiu.pomohaci@ulbsibiu.ro

Introduction

For the performance capacity, multiple conditions are required in each sport branch; there are sports in which the somatic factor has a very high weight just as in others, the capacity of aerobic or anaerobic effort is decisive; technical or tactical training also differs from one sport to another depending on the type of motor load, collaboration with teammates or adversity with the opponents from the other team. In all sports, the decisive factors of performance include, as an essential component of performance capacity, the mental capacity of the athlete as a result of the original combination of genetic factors and educational and social components. The psychic factors responsible for the athlete's behavior perform different functions, among which those of adaptation - regulation play the most crucial role.

Mental capacity is a system of particularities, states, and processes that guarantee the individual's activity; it presents itself as a specific individual, original synthesis, conditioned mainly by skills, attitudes, and learning.

According to M. Epuran et al., [1] it is necessary for the athlete to learn behaviors specific to the competition, to learn to control himself, to adapt his actions to difficult or surprising situations, to keep his mental freshness both before as well as during the competition, and many more. The purpose of the mental preparation for the competition consists of the formation of a system of attitudes within the athlete. It consists of an operational and regulatory character through which he can adapt in a supple and creative manner to the situations of the competition and to the actions of the opponents.

Psychological performance, as Sánchez Acosta [2] points out, is a system of influence aimed at acquiring mental skills that are essential to improve performance in dealing with different sports and competitions, and as a person develops.

Some studies agree that self-confidence concerning sports action plays a predominant role in participation during the exercise and in the level of adherence to the activity [3].

Cox [4] states that this is one of the best predictions of competitive success, given that it is closely related to the execution and strategy that maneuvers the athlete to solve the various situations in sports.

Athletes use imagined practice to improve both psychological and physical skills. Applications include improving concentration, building confidence, controlling emotional responses, learning and practicing sports strategies and skills, even more essential aspects in situations where there is no physical practice or which are interrupted by injuries [5].

Anxiety is a maladaptive psychophysiological response to a threat perceived as possible but vague. This type of threat causes a decrease in performance because we cannot protect ourselves in the face of an uncertain and unpredictable event. Often, anxiety-specific behaviors are represented by avoiding certain demanding situations and "escaping" from these situations, which explains why during sports competitions, in the minds of anxious athletes often appear thoughts and intentions to avoid confrontational situations or why, in some cases, there are even "involuntary" injuries.

Anxiety is a strong feeling that is characterized by a disagreeable condition generated by interior turmoil, frequently accompanied by an irritated behavior, which is manifested by restless movement, somatic complaints, and discomfort.

All sports involve physical and mental activities that are pursued for more than merely practical reasons [6]. Psychology is increasingly involved with athletes, coaches, and trainers to enhance athletic performance through improved physical and mental training. To facilitate peak performance by athletes, sports psychologists must consider the three different facts of anxiety, cognitive anxiety, somatic anxiety, and self-confidence.

Anxiety represents a main topic in sport psychology that focuses its attention on its influence on sport performance. Anxiety plays an essential role in the acquisition of motor skills as well as athletic performance. Also, anxiety can either increase or decrease performance [7]. The nervousness feeling is associated with feelings of reluctance and tension. In contradiction with excitement, the nervousness feeling is not neutral, but instead it is an unpleasant finish of the effect continuum [8].

Generally, two types of anxiety are state anxiety and trait anxiety [8]. State anxiety involved feeling apprehension, tension, fear, and increased physiological arousal [8]. Those characteristics of

anxiety represent an instant emotional response to external factors or specific situations. The anxiety condition also represents somatic and cognitive anxiety [8]. The somatic anxiety feeling is linked to the physiological characteristics of anxiety, which also implies physical symptoms such as fast heartbeat, abrupt breathing, and muscular soreness [9]. The second element of state anxiety is cognitive anxiety, that makes the connection between unrest and emotional stress toward future events [10]. Regarding feature anxiety, it implies living with anxiety problems for a long period of time in stressing surroundings [11].

Everyone is at risk of experiencing psychological disorders at any stage of life, such as stress, depression, and anxiety [12]. Anxiety is often experienced by athletes, both amateur and elite sports athletes, either young or mature athletes [13].

Material and methods

Our experiment was structured on two tests, the initial test in which together with the team's sports psychologist, we assessed the initial state of anxiety and established the directions to follow, which are the players who need emotional rehabilitation sessions or overcoming anxiety before the competition, and the second test, the final one, in which we evaluated the level of anxiety and stress after the therapy and psychological training sessions.

Our study focused on discovering the problems of self-confidence, communication, socialization, and combating anxiety in the U18 men's basketball players of the CSM Medias team. The experiment took place over a period of six months, between 01.08.2019 and 01.02.2020, consisting of two assessments of anxiety (initial on 02.08.2019 and final on 26.01.2020), between the two tests, using different therapies and observation sheets for making progress in reducing the athletes' anxiety.

In the experiment, we also benefited from two training camps, one in summer and one in winter, in which the team progressed a lot due to the proximity and centralized framework in which they trained, the athletes living together for a few weeks, having time to get to know each other, which better increases the cohesion of the group. At the same time, in addition to the training sessions with the

team, the team played in the preparatory part of the championship (August-September) ten friendly matches with opponents of different values, some teams with whom we encountered problems and with whom we noticed a psychological block due to the value of the opponents, or rivalry.

The anxiety level of the team during the initial period was increased, many athletes expressing fears related to their performance in matches, the impossibility to give the maximum performance, or the possibility to disappoint colleagues, coaches, or even relatives. Together with the team psychologist, we discovered an increased level of anxiety in the team.

The next step was to implement the psychological training program to alleviate individual and collective anxiety levels. Individual meetings were established with each of the team members, as well as with the entire team. Observation sheets followed each training session, as well as the friendly and official matches played by the team in the training period (August-September) and in the competition period. The psychological training program managed to improve the level of social cohesion within the athletes' group, the level of communication and cooperation, and reduced the level of athletes' anxiety. The final test results can be seen in table no. 4, and the comparison between the initial and final testing can be observed in figure no. 3.

Hypothesis of the research

The hypothesis of the research was: the use of sports psychological counseling programs can improve the level of communication and social cohesion and can also diminish the group's level of anxiety.

Objectives of the research

The objectives of the research were first of all to analyze the initial anxiety level of the basketball team, then to identify the causes of anxiety and build a training program alongside the psychologist of the team, and to analyze the final level of anxiety before the start of the official season.

Methods of research

The primary method of research was the SCAT (Sport competition anxiety test) questionnaire [14]

(table I). The questionnaire had 15 items with three answer options, each response had a preset number

of points attributed, and in the end, all the points were summed, and the result was interpreted.

Table I. The SCAT questionnaire

Questionnaire items	Answer options		
	Rarely	Sometimes	Often
1. Is competition with others socially pleasing?			
2. I feel anxious before competing.			
3. Before competing, I worry that I will not perform as I would like.			
4. I am a good athlete when I compete.			
5. When I compete, I'm afraid I'll make mistakes.			
6. I'm calm before I compete			
7. Setting a goal is important when competing.			
8. Before competing I have a strange feeling in my stomach.			
9. Even before I compete, I notice that my heartbeat increases more than usually.			
10. I like to compete in sports that require a lot of physical energy			
11. Before I compete, I feel relaxed.			
12. Before I compete, I feel nervous.			
13. Team games are more attractive to me.			
14. Before the game starts, I get nervous in the desire to start the game faster.			
15. Before competing, I usually get confused.			
Name _____ of _____ the _____ athlete _____			Age: _____
Gender: _____ Experience in basketball _____			SCAT score: _____

Sport competition anxiety test and interpretation of the questionnaire (Table I, II)

Every subject of the research was invited to read each statement below and decide if they feel “rarely”, “sometimes” or “often” the following feelings before the start of the sports competition. Each question will receive a certain number of points, depending on the level of anxiety they are

analyzing. Each athlete’s answer will be marked with 0, 1, 2, or 3 points, after which all the points will be added, and they will be included in a level of anxiety (small, medium, or high). Questions 1, 4, 7, 10, and 13 received 0 points regardless of the athletes’ answers.

Table II. The SCAT questionnaire score

Number	Answer options			Athletes score
	Rarely	Sometimes	Often	
1.	0	0	0	
2.	1	2	3	
3.	1	2	3	
4.	0	0	0	
5.	1	2	3	
6.	3	2	1	
7.	0	0	0	
8.	1	2	3	
9.	1	2	3	
10.	0	0	0	
11.	3	2	1	
12.	1	2	3	
13.	0	0	0	
14.	1	2	3	
15.	1	2	3	

TOTAL SCORE

Lower score than 17 points: the athlete has a low anxiety level; Scores between 17 points and 24 points: the athlete has an average level of anxiety; Scores higher than 24 points: the athlete has a high level of anxiety

This investigation was overseen following the Declaration of Helsinki (2013) and approved by the Ethics Committee before the study. It also met the ethical standards for Sport and Exercise Science Research, since the General data protection regulation came into force on 25 May 2018 (Regulation (EU) 2016/679).

Subjects of the research and inclusion / exclusion criteria

The research took place at CSM Mediaș gym with the U18 team of basketball, having as main subjects

the 12 players of the team, the two coaches, and also the fitness coach and the team psychologist. The period was six months, starting with the initial testing in August 2019, then a period of psychological training and mental counseling and ending with a final evaluation in February 2020.

Results

The results of our study are listed below (Table III, IV)

Table III. Initial test for discovering the level of anxiety at the beginning of the experiment

No.	Athlete	The initial level of anxiety
1	A.M.	15
2	C.I.	22
3	D.A.	25
4	D.S.	25
5	G.A.	18
6	H.A.	26
7	L.O.	23
8	M.N.	24
9	M.A.	25
10	N.E.	20
11	S.I.	22
12	T.R.	24
Arithmetic mean		22.42
Max		26
Min		15
Median		23.50
Module		25

Legend: Lower scores than 17 pts. – the athlete has a lower level of anxiety
Scores between 17 points and 24 points - the athlete has an average level of anxiety
Scores higher than 24 points - the athlete has a high level of anxiety

As shown in Table 3, the initial anxiety level of the U18 men's basketball team CSM Mediaș was medium to high, with an average value of 22.42 being placed on the evaluation scale as medium level anxiety. The module (the most common value in a series of numbers) was 25 showing that the anxiety level is high. The median value was 23.50,

emphasizing the idea that athletes have a high level of anxiety. Some athletes on the team showed a high level of anxiety, requiring specialized help from the sports psychologist to increase self-confidence, communicate with others, and reduce stress and fear of competition.

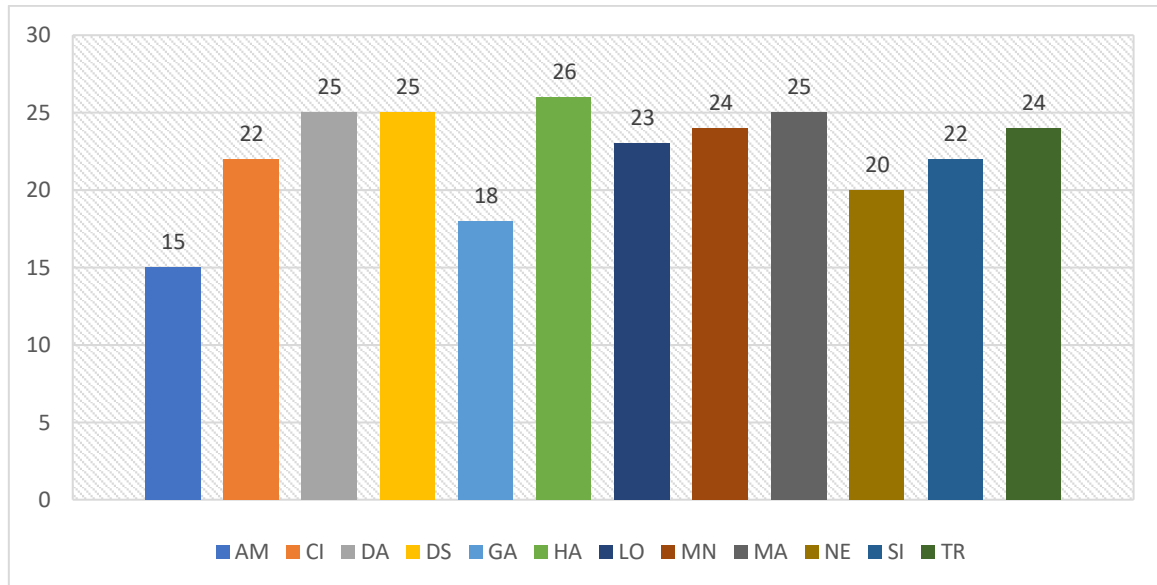


Fig. 1. Graphical representation of the initial level of anxiety

Table IV. Final testing of the anxiety level

No.	Athlete	Initial level of anxiety
1	A.M.	14
2	C.I.	20
3	D.A.	23
4	D.S.	24
5	G.A.	19
6	H.A.	24
7	L.O.	20
8	M.N.	21
9	M.A.	21
10	N.E.	20
11	S.I.	22
12	T.R.	22
Arithmetic mean		20.83
Max		24
Min		14
Median		21
Module		20

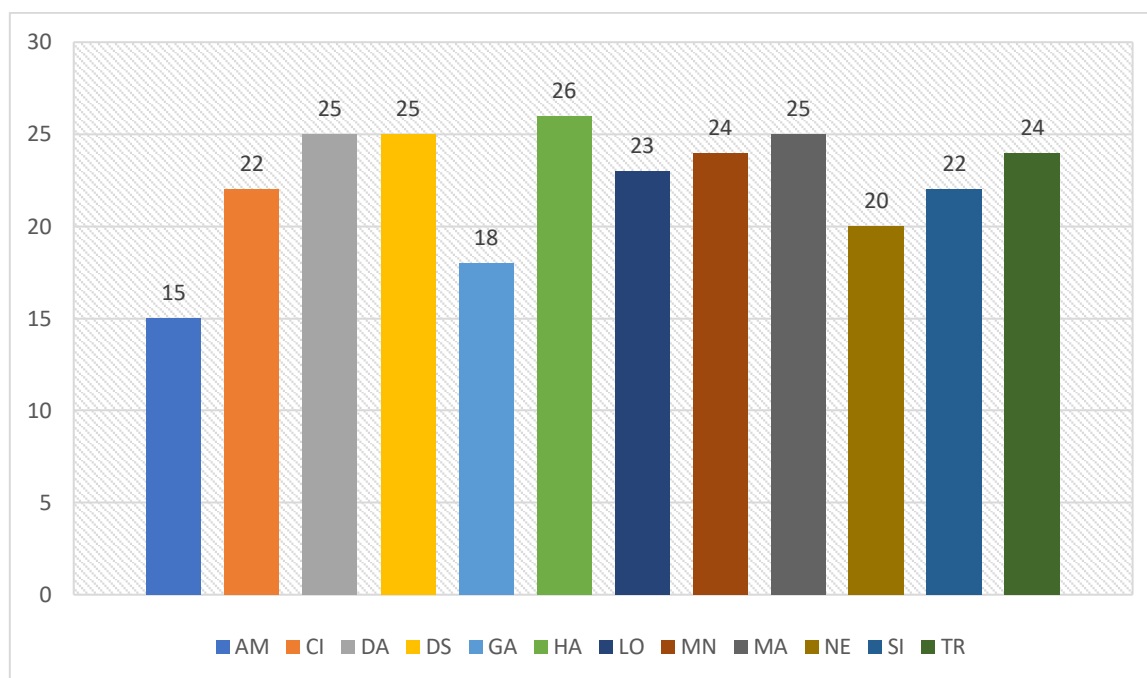


Fig. 2. Graphical representation of the final testing

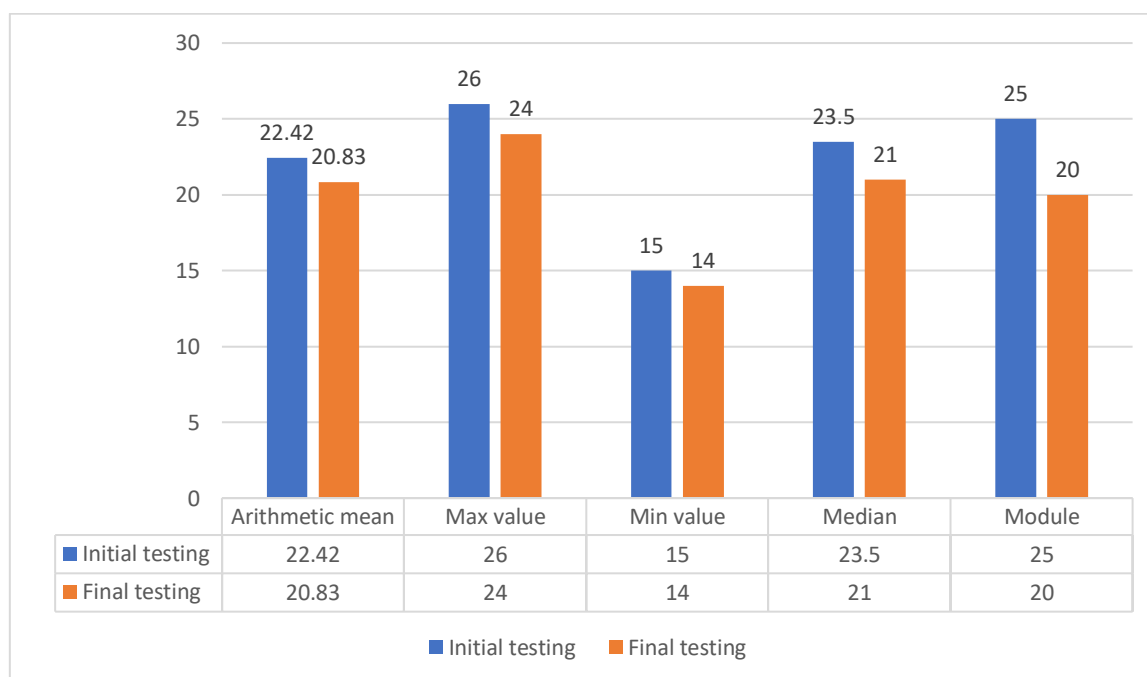


Fig. 3. Graphical representation of the statistical parameters of the initial and final testing

Discussions

Anxiety is one of the primary and most frequent emotional states experienced in the sporting environment [15]. Every person has different reactions to stress and anxiety, and is well known that if it is not managed well, the anxiety level can have a negative impact on the athletic level, and indeed it is worth great attention from specialists,

coaches, and also from medical staff and sports psychologists [16] [17]. Some scientific research found that anxiety can vary from individual to individual and also depending on situational aspects, anxiety problems can be separated in two kinds: trait anxiety, that relates to personality traits such as impatience, fear, or tension being fixed personality characteristics in a person, and the

second kind of anxiety is state anxiety, that expresses some provisional attitude of anxiety in a particular situation [18] [19].

In a recent study [15] scientists discovered in an 80 female gymnast sample an average level of trait anxiety, state anxiety (cognitive and somatic), and self-confidence using the SCAT questionnaire. The results obtained for the six subjective mood states showed low levels for vigor, and high levels were found for tension and fatigue. The total mood disorder was classified as high in most athletes.

Another scientific research [20], analyzed the level of anxiety in individual vs group sports and compared 50 cricket players and 50 karate athletes finding that the initial anxiety levels of cricket players were high compared to the post anxiety levels; also, the initial anxiety of karate athletes is similar to post anxiety, the answer being that in team sports, when playing in an away game in a different environment, with which the athlete is not accustomed, the levels of anxiety are more likely to raise compared to playing on home ground with warm public and being accustomed with the field. The fear of failure can result into a deeper anxiety level in a player who realizes that he is being observed and the stress level can also raise [21]. Other specialized studies with an interdisciplinary character concerning our research discuss the relationship and role of acceptance and planning in stress management for students [22], the importance of children's psychomotor level [23] and the young population's health level [24] [25] [26]. Also, athletes who participate in individual sports are more likely to experience higher anxiety levels compared to athletes who practice team sports.

Taking part in a team sport can reduce part of the pressure level that a player can feel compared to those athletes who compete alone. Self-confidence was found lower in individuals compared to team sport athletes. Lower self-confidence leads to higher anxiety before a match [27].

Conclusions

Following the research and the two tests, the following conclusions were drawn:

- the research hypothesis was confirmed, using sports psychological counseling programs can improve the level of communication and social

cohesion and can also improve the group's anxiety level;

- significant improvements were found regarding the group's anxiety level, as well as individually, the athletes cooperating much better in training and matches;

- performing psychological tests can discover and improve various deficiencies and relations that do not work within the group;

- using observation sheets, we can analyze the relationships within the group we lead, the observation method providing handy tools on the athletes' behavior;

- psychological preparation for the competition is an essential component that should not disappear from the basketball training plans;

- following the discussions and psychological training sessions, we were able to discover many cooperative relationships between the athletes, as well as dissensions and personal problems that we analyzed, and we managed to resolve conflicts and misunderstandings within the group.

References

1. Epuran M., Holdevici I., Tonita F. (2001). *Psihologia sportului de performanță [Psychology of performance sports]*, Publisher FEST, Bucharest, pp 22-24
2. Sanchez M.E.A. (2004). *Psicologia general y del desarrollo*, Publisher Editorial Deportes, pp 113-120.
3. Tod D., & Bond K. (2010). *A longitudinal examination of a British neophyte sport psychologist's development*, *The Sport Psychologist*, 24,35-51.
4. Cox R.H. (2007). *Sport Psychology: Concepts and applications*, Publisher McGraw-Hill, pp 123.
5. Weinberg R.S., Gould D. (2007). *Foundations of Sport and Exercise Psychology*, Human Kinetics Publishers, Champaign, pp 55-58.
6. Mishra D.K., Yadav U. (2017). *A comparative study of sports competitive anxiety between interuniversity basketball and football players*, *International Journal of Movement Education and Sports Science (IJMESS)*, 5(1), 190-192.
7. Kar S. (2013). *Measurement of Competition Level Anxiety of College Level Athletes by Using SCAT*, *Measurement* 2.3, pp 2-8
8. Cox R.H. (2002). *Sport psychology: Concepts and applications (5th Ed.)*, New York: McGraw Hill, pp 11-34.
9. Martinent G., Ferrand C., Guillet E., Gauthier S. (2010). *Validation of the French version of the Competitive State Anxiety Inventory-2 Revised (CSAI-*

- 2R) including frequency and direction scales. *Psychology of Sport and Exercise*, 11(1), 51-57.
10. Filaire E., Sagnol M., Ferrand C., Maso F., Lac G. (2001). *Psychophysiological stress in judo athletes during competitions*, *Journal of Sports Medicine and Physical Fitness*, 41(2), 263-268.
 11. Kornspan A.S. (2012). *History of Sport and Performance*, The Oxford Handbook of Sport and Performance Psychology, 3.
 12. Khabiri M., Ali Moghadam Zadeh, Kalash R. M., Asadi A., Meharsafar A. H. (2018). *The effect of positive self-talk intervention on psychophysiological responses of competitive anxiety and self-confidence in elite athletes*, *Neuropsychology*, 3 (4), 93-102.
 13. Hasanah U., Refanthira N. (2019). *Human problems: competitive anxiety in sport performer and various treatments to reduce it*, *Advances in Social Science, Education and Humanities Research*, volume 395, 144-148.
 14. Martens R., Burton D., Vealey R. S., Bump L. A., Smith D.E. (1990). *Development and validation of the Competitive State Anxiety Inventory-2*. In *Competitive Anxiety in Sport* (edited by R. Martens, R. S. Vealey and D. Burton), pp. 117-190. Champaign, IL: Human Kinetics
 15. Barreto M. P., Carlos E. L. V., Dalton M. P. F., Neiva C. M. (2019). *Analysis of mood states, trait anxiety, and state anxiety: a study with athletes before artistic gymnastics competitions*, *Journal of Physical Education and Sport*, 19(6), 336, 2234-2240.
 16. Robinson G., Freeston M. (2015). *Intolerance of uncertainty as a predictor of performance anxiety and robustness of sport confidence in university student-athletes*, *Journal of Clinical Sport Psychology*, 9(4), 335-344.
 17. Scott-Hamilton J., Schutte N. S., Moyle G. M., Brown R. F. (2016). *The relationships between mindfulness, sport anxiety, pessimistic attributions and flow in competitive cyclists*, *International Journal of Sport Psychology*, 47(2), 103-121.
 18. Horikawa M., Yagi A. (2012). *The Relationships among Trait Anxiety, State Anxiety and the Goal Performance of Penalty Shoot-Out by University Soccer Players*. *Journal PLOS-One*, 7(4):e35727.
 19. Weinberg R. S., Gould D. (2014). *Foundations of Sport and Exercise Psychology*, 6E. Human Kinetics, pp 308
 20. Ramakrishnan K.S., Sathya P., Bhavi G. (2015). *Assessment of anxiety in sports person pre & post sports performance a study on: levels of anxiety in individual vs group sport*, *International Journal of Innovative Research in Science, Engineering and Technology*, 4, (9), 8901-8905.
 21. Martens R., Vealey R. S., Burton, D. (1990). *Competitive anxiety in sport*. United States of America: Human Kinetics Publisher, pp 51-60.
 22. Popa C. O., Schenk A., Rus A., Szasz S., Suci N., Szabo D.A., Cojocaru C. (2020). *The Role of Acceptance and Planning in Stress Management for Medical Students*, *Acta Marisiensis - Seria Medica*, 66(3):101-105.
 23. Szabo D. A., Neagu N., Ardelean M., Sopa I.S. (2020). *Psychomotor evaluation of athlete and non-athlete children*, *Discobolul – Physical Education, Sport and Kinetotherapy Journal*, 59 (1), 56-69.
 24. Szabo D. A., Neagu N., Stoica B. A., Fodor D., Sopa I.S. (2020). *Analytic study regarding physical development and health level at youth population aged between 10 and 15 years old*. *STUDIA UBB EDUCATIO ARTIS GYMN.*, LXV, 2, pp. 39 – 54.
 25. Szabo D. A., Sopa I.S. (2020). *Study regarding the level of physical and functional development of children from primary school level*. *Journal of Physical Education and Sport*, 20 (3), 1497 – 1504.
 26. Szabo D. A., Sopa I. S. (2020). *Study regarding the bio-motor level and health of children from gymnasium level*, *SPORT AND SOCIETY – Interdisciplinary Journal of Physical Education and Sports*, 20(1), 1-9.
 27. Nayek B., Chatterjee K. (2013). *Comparative study on pre-competition anxiety between national and state level women athletes*, *IOSR Journal of Sports and Physical Education*, 1(2), 33-6.