Assessment of pre-competition emotional states of different mastery women-basketball players

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Abstract

Purpose:	Before competitions, athletes often have different emotions, tension, instability, mistakes and doubts. Thus, pre-competition states have an important influence on the quality of athlete's performance, but it is important for athletes to control these states. For the optimum competition performance, the emotional states of athletes and their ability to control them properly must be considered. Purpose: to assess the pre-competition emotional states of different mastery women-basketball players.
Material:	For the assessment of pre-competition emotional states of women-basketball players, the competitive state anxiety inventory-2 as well as the SAN test were used and they helped to assess the pre-competition emotional states of women-basketball players: well-being, activity, mood. 171 women-basketball players that played in two different women's basketball league championships of Lithuania participated in the research. All the women-basketball players were divided into two groups: 71 women-basketball players played in the women's basketball league of Lithuania (in our case, their mastery was high) and 100 women-basketball players played in Akvile women's basketball league (athlete women of low mastery). In order to perform the descriptive index analysis, check the hypothesis and assess the reliability of the difference between the researched groups, Student (t) and chi–square ($\chi2$) criteria were applied. Statistical significance level $\alpha = 0.05$.
Results:	The results of the research showed the women-basketball players playing in the women's basketball league of Lithuania assessed the cognitive anxiety with 24.8±9.29 points and the women-basketball players playing in Akvile basketball league assessed it with 13.9±3.85 points. Appropriate means of somatic anxiety indexes: 20.7±9.45 and 13.1±2.61 points. Meanwhile, the women-basketball players of lower mastery (30.7±4.85 points) had a higher self-confidence level than the women-basketball players of higher mastery (20.6±9.36 points). The women-basketball players of higher mastery assessed their pre-competition emotional states: well-being with 46.5 per cent and activity with 52.4 per cent and almost 40 per cent of the women-basketball players from the both groups assessed their mood at an average level.
Conclusions:	After assessing the pre-competition emotional states of the women-basketball players of different mastery, it was revealed that the women-basketball players of higher mastery had higher cognitive and somatic anxiety before competitions compared with the women-basketball players of lower mastery. Meanwhile, the women-basketball players playing in Akvile basketball league were more self-confident. The well-being and activity of the women-basketball players of lower mastery is assessed better than those of the women-basketball players of higher mastery, but there were no reliable differences of mood.
Keywords:	women-basketball players, pre-competition, emotional, somatic, cognitive, self-confidence, well-being, activity, mood.

Introduction

Athletes often have proper physical data, comprehensive technical and tactical instructions, excellent physical form to get sport success, but they are unable to cope with emotions emerging under competitive conditions in sport. This information is important trying to understand the behaviour of athletes, planning to implement the possibilities of increase of sports activity results and trying to encourage the psychological preparation of athletes [1]. According to G. H. Lotfi et al. [2], the ability to control emotional states can be especially advantageous for athletes that has to compete against the rival. Thus, the success of basketball players largely depends both on their physical data or motor abilities and on psychological factors, such as the expression of emotions, ability to control them and self-confidence [3; 4]. Therefore, almost every team tries to eliminate any factors precluding the way to victory in their sport activity and tries to strengthen any factors facilitating the way to it.

According to some researchers, such as C. Robazza and L. Bortoli [5], the intensity of emotions of athletes is different both in trainings and in competitions and it often changes before, during and after them. The emotions reflecting the psychological state of an athlete before competitions can be controlled, diverted or ignored if they are related with sport results.

In the opinion of scientists T. Bozkus, M. Turkmen, M. Kul [6]; B. Eskandari et al. [7], anxiety is one of the most important emotional states because it has a direct influence of the achievements of athletes. There are a lot of scientific studies concentrating the main focus on the peculiarities of the expression of anxiety in athletes, coaches and referees. For example, some researchers, such as M. Humara [8], suppose that mild anxiety is obligatory for an athlete's success. On the other hand, the studies of D. Gould, L. Petlichkoff and R. S. Weinberg [9] confirm that athletes, who often participate in competitions and have higher experience in doing sports, feel weaker anxiety. Meanwhile, L.A. Velickovska at al. [10] states that anxiety before competitions can be controlled taking into account the experience of previous competitions and assessing the results of activity in complicated situations. In other works, is also tried to look for answers to questions in what way anxiety affects the representatives of individual and team sports [11; 12; 13], how similar or different the features of anxiety in the aspect of the sex of athletes are [12; 14], in what way

anxiety emerges in players during the game according to their positions and in what way anxiety is related with the experience and abilities of athletes [15]. Meanwhile, the outcomes of the researches performed by T. Covassin and S. Pero [16] show that competition anxiety is important for performances of athletes, but the coaches and athletes of different sports acknowledge the importance of self-confidence more and more often.

Whereas, self-confidence is indicated by most athletes as an integral part of their best performances or competitive success [17]. Studies confirm unambiguously the role of self-confidence is also important and it affects the competition anxiety of an athlete [18; 17; 19]. Sport activities help athletes to train their self-confidence and pay attention to their abilities because the technical aspects of the game are mastered more effectively in this way [20]. Athletes, who do not interpret any symptoms of the competition anxiety as something dangerous, are more self-confident than those athletes that are affected by the competition anxiety negatively and experience it as exhaustion. Thus, to sum up, we can state that high self-confidence of an athlete protects from a highly negative reaction to the pre-competition anxiety and strengthens the ability of athletes to control their emotions and cope with them before starting [17]. Scientists C. Modrono and F. Guillen [21] agree that athletes, who are interested in the problems of emotional states, are able to cope with their emotions better, have more self-confidence, do not have any fear, do not feel any thrill related with the sport activity or result to be reached. Thus, taking into account these things, a hypothesis is raised in the work that the pre-competition emotional states of women-basketball players of higher mastery are assessed more favourably than those of women-basketball players of lower mastery.

Moreover, there are a lot of unanswered questions about the type of anxiety of athletes participating in higher level sport competitions, especially of athlete women. Thus, these scientific discussions encourage developing the studies of peculiarities of the expression of emotional states of athlete women additionally in order to check the way of expression of competition emotions in women-basketball players of different mastery as there are few of them.

The purpose of the research – to assess the pre-competition emotional states of different mastery women-basketball players.

Material and methods
Participants: 171 women-basketball players that played in two different women's basketball league championships of Lithuania participated in the research. All the women-basketball players were divided into two groups: 71 women-basketball players played in the women's basketball league of Lithuania (in our case, their mastery was high) and 100 women-basketball players played in Akvile women's basketball league (athlete women of low mastery). Verbal agreements of the coaches and women-basketball players were obtained before the research. The survey was carried out in the changing rooms

an hour before the competition. During the research, it was tried to ensure the anonymity and confidentiality because the research participants were not asked to say their names or surnames and it was emphasized the data would be analysed in a statistically generalized form only and no individual answers will be publicized. Before the survey, the women-basketball players were familiarized with the purpose of the research and the instructions of filling out methodology were explained.

Organization of the research: in order to assess the emotional states of the women-basketball players, the competitive state anxiety inventory-2 (CSAI–2) was applied [22]; it consists of 27 statements divided into three categories, 9 statements in each. The respondents had to assess all the statements according to the four-point Likert scale (1 – absolutely no, 2 – a little, 3 – more or less, 4 – very much). This questionnaire allowed assessing cognitive anxiety, somatic anxiety and self-confidence.

Cognitive anxiety is a mental component of anxiety caused by negative anticipation or negative self-assessment [22].

Somatic anxiety is a kind of anxiety related with physiological symptoms: quick heartbeats, wet hands and unpleasant feelings in the stomach. Somatic anxiety is the experience of the own anxiety by the sportsman [22].

Self-confidence is a human sense and understanding that he/she is able to carry out the tasks set by life and by the own person [23].

Cognitive anxiety = (1+4+7+10+13+16+19+22+25)/9, somatic anxiety = (2+5+8+11+14+17+20+23+26)/9, self-confidence = (3+6+9+12+15+18+21+24+27)/9.

Norms of assessment of cognitive anxiety, somatic anxiety and self-confidence: cognitive anxiety – 21.58 ± 7.68; somatic anxiety – 18.53 ± 6.13; self-confidence – 22.41 ± 6.12.

Cronbach alpha coefficients of the applied methodology were also calculated: 0.76 – for cognitive anxiety; 0.74 – for somatic anxiety; 0.67 – for self-confidence. The obtained coefficients show the validity of the questionnaire scales.

The purpose of the SAN test [24] was to assess the pre-competition emotional states of the women-basketball players according to three components: well-being, activity and mood. Each component analysed by us is defined by 10 pairs of words with opposite meanings which are assessed from 1 to 9 points.

$$Well-being(W) = \frac{\sum_{i=1}^{n} W}{10} \qquad Activity(A) = \frac{\sum_{i=1}^{n} A}{10}$$

$$Mood(M) = \frac{\sum_{i=1}^{n} M}{10}$$

Well-being – sense of the decisive internal state of physiological and psychical factors [25].

Activity – psychical and physical ability of the organism to act [25].

Mood – general emotional state of a person that is expressed externally and has a positive or negative impact on the invidual's activity and relations with the environment [25].

The validity of the SAN test was demonstrated with Cronbach alpha coefficient: 0.64 – for well-being, 0.71 – for activity, 0.69 – for mood [26].

Statistical analysis: for the analysis of the research data, the SPSS 21.0 program package was used. For the check of the mathematical statistical hypothesis and assessment of reliability of the difference between the researched groups, Student (t) and chi–square (χ2) criteria were used. Our scientific hypothesis was checked by choosing the significance level α=0.05. The means of the analysed variables were assessed by using 95 per cent trustworthy intervals. The differences between appropriate indexes were considered statistically significant if the calculated statistical significance was p<0.05.

Results

By using the questionnaire of the competition state anxiety, we analysed the components of cognitive and somatic anxiety as well as self-confidence of the women-basketball players playing in the women's basketball league of Lithuania (higher mastery) and Akvile basketball league (lower mastery). Analysing the expression of cognitive anxiety in the women-basketball players of different mastery before competitions, it can be noticed that the women-basketball players of higher mastery and those of lower mastery assessed cognitive anxiety with different points.

By using Student t criterion for independent samples, a statistically significant difference between the groups researched by us was revealed: t (170) = 6.47; p<0.05. The following means of cognitive anxiety indexes were determined: those of the women-basketball players playing in the women's basketball league of Lithuania – 24.8±9.29 points and those of the women-basketball players playing in Akvile basketball league – 13.9±3.85 points (fig. 1). It allows stating that the women-basketball players of higher mastery have a higher cognitive anxiety level before competitions than the women-basketball players of lower mastery.

We also analysed the statistical indexes of somatic anxiety of the women-basketball players (fig. 2). It was revealed that the women-basketball players playing in the women's basketball league of Lithuania had a statistically reliably higher level of somatic anxiety t (170) = 4.35; p<0.05 compared with the women-basketball players playing in Akvile basketball league.

The following means of somatic anxiety indexes were determined: those of the women-basketball players of the women's basketball league of Lithuania – 20.7±9.45 points, those of the women-basketball players of Akvile basketball league – 13.1±2.61 points.

We also tried to assess the self-confidence level of the women-basketball players of different mastery before competitions that reflects their satisfaction and efforts trying to reach the goal during the sport activity.

The analysis of the research outcomes revealed that the self-confidence level of the women-basketball players playing in Akvile basketball league was higher (30.7±4.85 points) compared with the women-basketball players playing in the women's basketball league of Lithuania (20.6±9.36 points). It is confirmed by the statistically significant difference obtained by applying Student t criterion: t (170) = 3.59; p<0.05 (fig. 3).

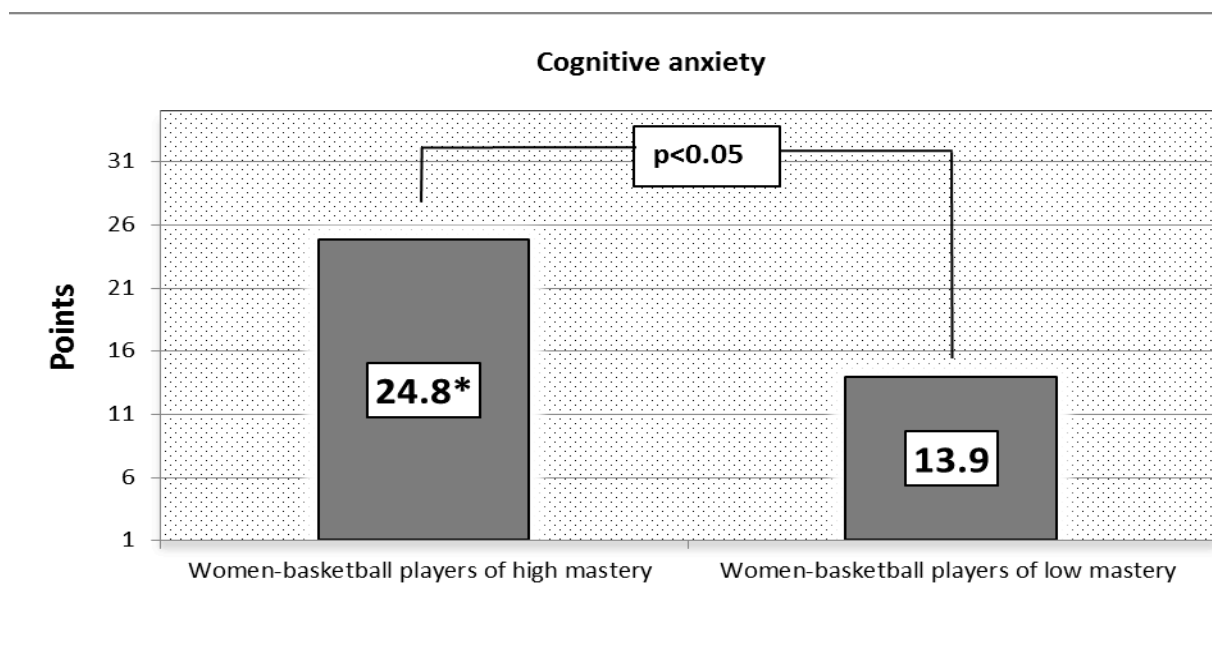Trying to compare the pre-competition emotions of

Fig. 1. Distribution of *cognitive anxiety* indexes of women-basketball players of different mastery (in points)

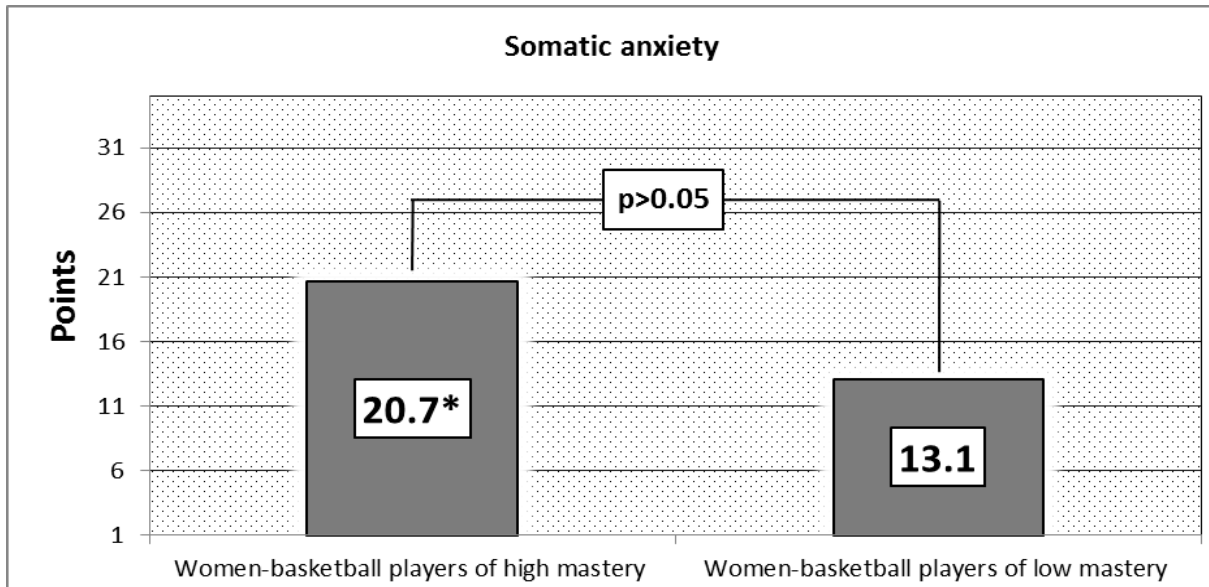Note: * – marking of the statistically reliable difference (p<0.05)

Fig.2. Distribution of *somatic anxiety* indexes of women-basketball players of different mastery (in points)

Note: * – marking of the statistically reliable difference (p<0.05)
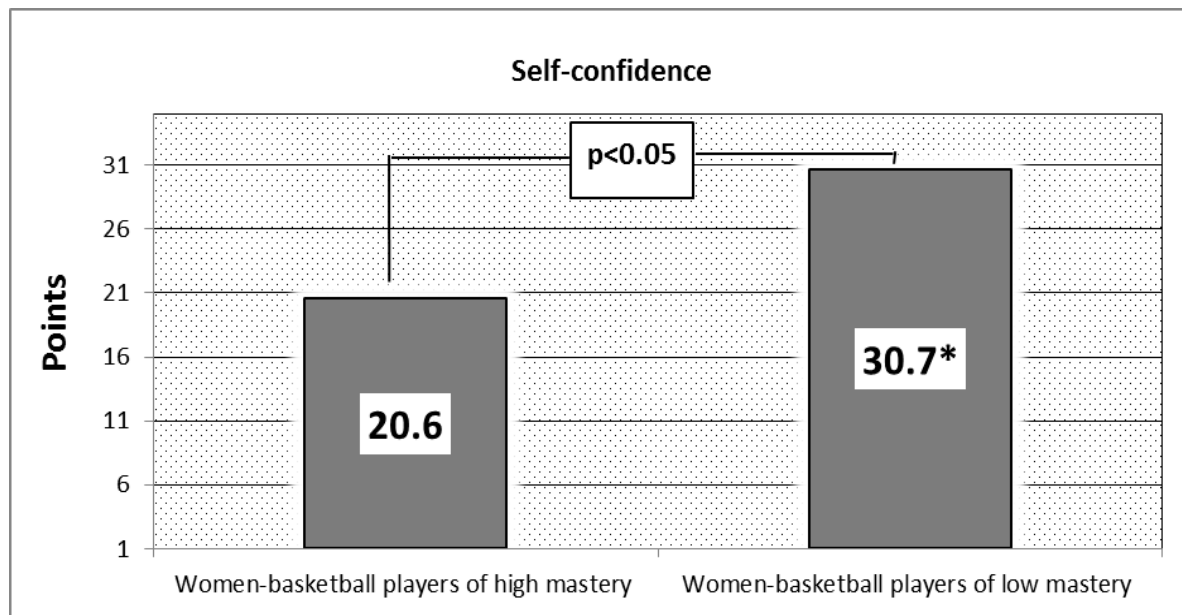

Fig. 3. Distribution of *self-confidence* indexes of women-basketball players of different mastery (in points)

Note: * – marking of the statistically reliable difference (p<0.05)

the women-basketball players of different mastery, it was revealed that both the women-basketball players of higher sport mastery and those of lower sport mastery assessed their well-being, activity and mood well enough because at least 25 per cent women-basketball players indicated that their emotional states were assessed at a high level in all cases.

By using χ^2 criterion, it was determined that the assessments of two components of pre-competition states: well-being (p<0.05) and activity (p<0.05) were different statistically reliably. A high level of these components is emphasized more by the women-basketball players of higher mastery, respectively: well-being – 46.5 per cent and activity – 52.4 per cent. The mood was assessed at

an average level by almost 40 per cent of the women-basketball players of both groups. It can be stated that the mood assessment indexes are not different statistically reliably both for the women-basketball players of high mastery and for those of low mastery and it allows stating that the women-basketball players assess their mood before competitions similarly irrespective of their sport mastery.

Discussion

During our research, the main attention was paid to the emotional states of the women-basketball players of two different women's basketball leagues of Lithuania, such as cognitive and somatic anxiety, self-confidence

Table 1. Distribution of pre-competition emotional state indexes of women-basketball players of different mastery (in numbers and per cent)

Components of emotional states	Researched	Level High		Average		Low		$\chi^2(2)$; p
		n	%	n	%	n	%	
Well-being*	Women-basketball players of high mastery (n=71)	33	46.5	20	28.2	18	25.3	9.27 p<0.05
	Women-basketball players of low mastery (n=100)	25	25.0	46	46.0	29	29.0	
Activity*	Women-basketball players of high mastery (n=71)	38	53.5	18	25.4	15	21.1	8.11 p<0.05
	Women-basketball players of low mastery (n=100)	34	34.0	45	45.0	21	21.0	
Mood	Women-basketball players of high mastery (n=71)	23	32.4	31	43.7	17	23.9	4.23 p>0.05
	Women-basketball players of low mastery (n=100)	32	32.0	39	39.0	29	29.0	

Note: * – marking of the statistically reliable difference (p<0.05)

and well-being, activity and mood because we lacked studies analysing the emotional states of athletes in the aspect of different mastery. After analysing the statistical indexes of the components of pre-competition emotional states of the women-basketball players: cognitive and somatic anxiety as well as self-confidence, it emerged that the women-basketball players of high mastery had lower cognitive and somatic anxiety than the women-basketball players of lower mastery. It is likely these statistically significant differences were caused by higher experience of the women-basketball players. Taking into account this fact, the conclusion of similar works by M. Sedaraty [27] could be supported because athletes of higher mastery have a lower anxiety level compared with athletes of lower mastery. Meanwhile, the outcomes obtained in the works carried out by S. Jakovljević, M. Karalejić and L. Lazarević [3] showed that women-basketball players with higher sport experience were more oriented to sport achievements, less inclined to worry, more self-confident and more stable emotions were characteristic to them. However, these similarities cannot be interpreted as absolutely compliant with our data because the psychological parameters analysed in these studies are not identical and they are analysed in the aspect of age. Moreover, according to the data of the research performed by A. Türksoy [28], it was revealed that the cognitive and somatic anxiety level of teenagers-basketball players increased largely and the self-confidence level decreased. Furthermore, the author of this work emphasizes unambiguously that anxiety is an important barrier for athletes trying to reach successful sport performance. Nevertheless, some scientists, such as B. Eskandari et al., state that if athletes suffer from anxiety before competitions, their sport performances are mostly worse than of athletes who do not feel any thrill [7]. Meanwhile, researchers K.S. Khan and D. Alin [29], who analysed the emotional states of elite women and men-wrestlers, provided important evidence that

there were no statistically significant differences between cognitive and somatic anxiety as well as self-confidence in the aspect of sex. For example, the studies carried out by H. Soltani, Z. Hojati and S.H. Reza Amini allow stating that athletes of individual sports are inclined to feel higher anxiety than athletes of team sports [13]. It is based with a stronger feeling of responsibility because athletes of individual sports feel stronger pressure and are more responsible for the results of their sport activity than athletes of team sports. However, it must be accentuated that the works performed by the above-mentioned authors do not analyse any peculiarities of pre-competition emotional states of women-basketball players of different mastery, but they analyse the emotional states of elite athletes, so it is difficult for us to compare them with the outcomes of our research. Besides, R. Malinauskas analysed the peculiarities of emotional states of athletes of cyclic sports and revealed the tendency that the emotional states of athletes were affected by such factors as importance of competitions, capacity of rivals, quality of organization of competitions, behaviour of a coach and other important persons and individual characteristics of an athletes [30]. As we did not research what affected the rise of pre-competition states of women-basketball players, we cannot assess whether this data is similar or different from our outcomes. However, comprehensive studies of S. Hanton, S.D. Mellalieu and R. Hall confirm that anxiety is especially strong before competitions and self-confidence acts as a variable that reduces or increases the anxiety arising because of the understanding of the importance of competitions [31]. Meanwhile, similar studies performed by J. Vodičar, E. Kovač and M. Tušak try to assess and compare cognitive, somatic anxiety and self-confidence of professional men-basketball players before and after competitions [17]. The outcomes of the research allow forming a conclusion that the symptoms of cognitive and somatic anxiety are expressed in men-basketball players before competitions more often

than after competitions and it does not affect any self-confidence indexes.

Meanwhile, researchers T. Covassin and S. Pero confirm in their scientific works that winning athletes have a higher self-confidence level, so they express less negative emotions and are more oriented to the effectiveness of their acts than losing athletes [16]. Nevertheless, it can be stated that the outcomes of the works performed by M. Krepštul are very similar and it is tried to compare the pre-competition states of boxers of different mastery; better well-being and mood indexes are more characteristic to boxers of higher mastery compared with athletes of lower mastery, but the activity indexes are similar in these groups [32].

The data of our research comply with the outcomes of M. Krepštul: better emotional states are characteristic to athletes of higher mastery before competitions compared with athletes of lower mastery [32]. We think this assumption can be based with the data of researches of F. Guillén and R. Sánchez proving that elite women-players feel weaker symptoms of anxiety because most of them are able to cope with thrill better than athlete women who play at a lower level [15]. Moreover, other studies, for example, performed by V. Ivaškienė et al. [33], which analyse the well-being, activity and mood of sambo and judo women-students before competitions, confirm that the well-being, activity and mood of women-students doing these sports were at a high level and there were no significant differences according to the kinds of sports. Nevertheless, we cannot agree with the data of the research of V. Ivaškienė et al. [33] because we did not try to compare any emotional states according to the kinds of sports.

Certain limitations of this research should be mentioned as they may affect the final outcomes. First, the researched sample was formed from women-basketball players only. On the other hand, attention should be paid to quite a big difference of age of the researched (the women-basketball players were 17-39 years old). In order to check the assumptions of our work in the future, bigger and more various representation of the sample should be reached. Another limitation of the research is related with the assessment of pre-competition emotional states of the athlete women because we did not analyse any emotional states according to individual age groups. In spite of certain limitations, the outcomes of this research can be important for coaches, athletes and researchers of the sport science.

Quite contradictory works allow understanding that scientists have been interested for the issues of emotional states of athletes for many years, but it can be stated that the outcomes of their studies do not give an unambiguous answer about the peculiarities of emotional states of athletes of different mastery and more comprehensive scientific studies are necessary. Besides, our research drew directions for the researchers of emotional states of athletes how to supplement the available information. The following should be revealed in further studies: first, in what way the emotional states affect sport achievements; second, what methods or means would help to control emotional states in the most effective way, especially under the conditions of trainings and competitions; third, in what way the understanding of emotional states can be different taking into account the age, sex or sport done by athletes. We also think attention should be paid to the modelling of programs for the control of emotional states of athletes and check of their effectiveness. It should be emphasized that although there are some studies of T. D. Bishop, I.C. Karageorghis and P. N. Kinrade [34;]; J. Vodičar, E. Kovač and M. Tušak [17] presenting the psychological preparation programs as the main and effective way, which helps athletes to cope with the difficulties of emotional states, it is still a relevant problem in sport.

Conclusions

After assessing the pre-competition emotional states of women-basketball players of different mastery, it was determined that the women-basketball players of higher mastery had higher cognitive and somatic anxiety compared with the women-basketball players of lower mastery. Meanwhile, the women-basketball players playing in Akvile basketball league were more self-confident and it means they are inclined to a better understanding of their capacity to carry out the tasks set by their coaches or by them.

After assessing the pre-competition emotional states of women-basketball players: well-being, activity and mood, the statistical indexes show that the well-being and activity of the women-basketball players of lower mastery are assessed better compared with the women-basketball players of higher mastery, but there are no reliable differences of mood and it means that the women-basketball players of both groups assess this component similarly.

Conflict of interests:

The authors declare that there is no conflict of interests.

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