

# Impact of sex, age and practice time on self-efficacy in brazilian volleyball high-level athletes

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## ABSTRACT

The objective of this study was to investigate the relationship between age and practice time with the self-efficacy in volleyball athletes according to sex and the relationship between age and practice time with general self-efficacy, as well as to verify how these aspects impact the beliefs of volleyball players' efficacy. High-performance volleyball athletes ( $n= 300$ ), mean age was  $24.88 \pm 5.51$  years, and the meantime of experience was  $11.12 \pm 5.24$  years answered the Volleyball Self-Efficacy Scale and the Perceived General Self-Efficacy Scale. Age and practice time are correlated with the Global Self-Efficacy in Volleyball and the dimensions Self-Efficacy in the Game, Defensive Self-Efficacy in Volleyball and Offensive Self-Efficacy Volleyball of men athletes, female, men, and women. Perceived General Self-efficacy is related to the age and practice time of female athletes and female and male athletes of both sexes. These variables represent important aspects for the construction and solidification of positive beliefs of athletes of both sexes regarding their specific abilities and for women for general self-efficacy in life.

**KEYWORDS:** self-efficacy; volleyball; athletes.

## INTRODUCTION

Understanding the mental and cognitive aspects that influence athletes' behavior is decisive for interventions aimed at promoting, re-establishing, and/or maintaining cognitive resources and control actions over events and environmental demands during a competition (Dominski et al., 2018). Sports scientists have highlighted that, in high-performance sports, the instability observed in the athletes' performance during a competition is not characterized by a marked change in the athletes' physical, technical, and/or tactical aspects but by the fluctuation of the athletes' mental control, which can lead to the reduction of their attention capacity, increasing their vulnerability or predisposition to distraction and attention to aspects irrelevant to the tasks, which may generate doubts about their personal capacity (Stefanello, 2007a).

The belief in the personal capacity to carry out courses of action necessary to achieve a certain objective, referred to by Bandura (1986) as self-efficacy, influences athletes' affective reactions and motivation. Affective processes are related to the regulation of emotional states and obtaining emotional reactions. Motivation processes are linked to action plans, as well as to the intensity and degree of persistence of the effort to be used to achieve a certain goal. Therefore, it is of fundamental importance to consider that self-efficacy determines the regulation of athletes' thinking patterns and how they will behave to achieve their goals in the face of adversity (Jackson, Gucciardi, Lonsdale, Whipp, & Dimmock, 2014).

In the context of high-performance volleyball, the object of analysis of this study, the constantly changing interactive environment that characterizes this modality, makes athletes

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**Conflict of interests:** nothing to declare. **Funding:** This research is partially supported by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – financial code: 001.

Received: 05/09/2020. Accepted: 02/11/2021.

develop and test a repertoire of standards and strategies appropriate to different environmental requirements, having to overcome limits in a vigorous way to maintain the efficacy and regularity of their performance at the highest levels of physical, technical, tactical and psychological requirements (Stefanello, 2007b). As a strategic collective sport in which there is great uncertainty, the most appropriate decision making is essential to obtain positive competition results (Gil-Arias, Moreno, Claver, Moreno, & Del Villar, 2016). However, the continuous transitions between attack and defense or the accelerated pace of the game (Zarceño, Vilella, Rosa, & López, 2017) make athletes experience various emotional reactions, which can affect their ability to make decisions, maintain mental control, and the belief in their personal capacity during the different demands of the games and competitions (Machado, 2018).

Feltz, Short and Sullivan (2008) highlight that successful athletes hold adaptive beliefs about their own ability to execute control over themselves and environmental challenges, proving themselves capable of performing to the best of their abilities, overcoming adversity, and managing emotions during competition. The athlete who perceives himself as highly capable of performing a certain task, besides showing great interest and commitment, investing more time and effort, anticipating results, planning goals, and persisting in the face of difficulties or adversities, is capable of showing improvement in his performance as a result of a good preparation process (González, 2017). The fact that the high-performance athlete seeks constant improvement in the sport makes him carry out continuous evaluations and re-evaluations of its execution, focused on the impact that such executions have on the competition (González, 2017), thus making it fundamentally important to identify how athletes evaluate their personal efficacy becomes fundamental as they seek to improve the sports performance of athletes in game and competition situations (Machado, 2018).

As sex (Estevan, Álvarez, & Castillo, 2016), age (Feltz et al., 2008; Musculus et al., 2018) and practice time (Samendinger et al., 2019) can influence the origin and development of self-efficacy beliefs in athletes, such factors also need to be considered in different samples in the self-efficacy assessment process (Cornick, 2015; Krüger, 2018).

Feltz et al. (2008) point out that sex differences in relation to beliefs of personal efficacy were presented in descriptive and explanatory studies of the early 1980s, in order to investigate whether men were really more confident than women and that, about ten years later, the studies found in the literature support this difference only superficially.

In recent years, studies on self-efficacy have also pointed to controversy. Research with taekwondo athletes aimed to

analyze sports performance and its relationship with specific self-efficacy showed that men had higher self-efficacy scores and also better performance results than women (Estevan, Álvarez, Falcó, & Castillo, 2014). In another study with the same modality, the results found no differences in self-efficacy when comparing men and women (Estevan et al., 2016). These divergences reinforce the need for more studies that consider the association patterns between sexes before firmer conclusions can be drawn (Blecharz, Luszczynska, Tenenbaum, Scholz, & Cieslak, 2014).

The formation of personal efficacy beliefs is also influenced by the quantity and quality of experiences in different situations and life stages. The more opportunities a person has, the greater the contact with self-efficacy sources, which can strengthen their own beliefs. The cognitive appreciation of events that occur with a person determines the value given to achievements and failures (Bandura, 1997), bearing in mind that situations only become instructive through the cognitive perspective.

However, despite the advances derived from studies on sports self-efficacy, it is not clear how these factors affect the efficacy beliefs of high-performance volleyball athletes. In Brazil, few studies have worked with the subject in a national scenario (Andrade et al., 2015; Dominski et al., 2018; Machado, Balaguer, Paes, Fernandes, & Stefanello, 2018; Machado, Paes, Berbetz, & Stefanello, 2014; Vilarino, Dominsk, & Andrade, 2017), noting that none used a specific measurement instrument to measure self-efficacy beliefs in high-performance volleyball athletes. With the creation of a specific measure to evaluate this construct with high-performance volleyball athletes, it will be possible advancing this knowledge, which will bring important contributions to the understanding of what affects the athlete's self-efficacy, helping them obtain greater control over their mental processes and achieve a more consistent and effective sports performance.

In this sense, the objective of the present study was to verify the self-efficacy in elite Brazilian volleyball players, considering the sex, age, and time of practice of the participants.

## METHOD

### Study design

The present study corresponds to an empirical investigation with an associative strategy to verify the relationship between the investigated variables. In addition, this is a quantitative and comparative cross-sectional study since data collection took place in a single moment with each athlete (Ato, López-García, & Benavente, 2013).

## Participants

For the composition of the sample, it was sought to contemplate the Brazilian regions that had teams participating in the national championship *Superliga* (South, Southeast, and Midwest). However, it is noteworthy that most teams on the national scene, historically, are concentrated in the states of São Paulo and Minas Gerais (CBV, 2017).

All clubs (12 man teams and 12 woman teams) were invited to participate in the study via email, phone, or in person. Due to the total number of high-performance athletes enrolled in the competition (211 male and 203 female), geographic logistics, and the fact that not all teams participating in the *Superliga* authorize the participation of athletes in the research, we sought to contemplate maximum athletes possible participating in *Superliga*, which is the main team competition at the national level.

Participated in the present study 300 Brazilian high-performance volleyball athletes (133 male and 167 female), members of teams participating in the National *Superliga* 2016/2017. The *Superliga* corresponds to the main Brazilian competitive event in the adult category, involving the best volleyball teams from different country regions. Among the athletes, they included both those who were starting in high-level competitions and athletes with national and international experience (Olympic champions, two-time Olympic champions, world champions, and athletes with experience in world championships). The group of researched athletes comprised the 16 to 41 age group and had an average volleyball practice time of  $10.65 \pm 5.34$  years (Table 1).

All the athletes, both male and female, trained more than five times a week, one of the periods per day, around 2 hours per training period, divided into physical preparation, technique/tactics, and physiotherapy.

## Materials and procedure

The instruments used to collect information on the self-efficacy of volleyball athletes were the Perceived General Self-efficacy Scale (EAEGP) (Teixeira & Dias, 2005) and the Volleyball Self-efficacy Scale (VSES) (Machado, 2018).

The EAEGP (Teixeira & Dias, 2005) consists of a one-dimensional instrument of self-report, composed of 10 items grouped in a single dimension. The participant must point out one of the four possibilities of response (1-not true for me; 2-difficultly true for me; 3-is moderately true for me; and 4-is totally true for me) regarding the general feeling of personal competence to deal effectively in various stressful situations. The evaluation of overall self-efficacy corresponds to the sum of the values obtained by the scale. The EAEGP, originally built and validated by (Schwarzer & Jerusalem, 1995), presented good psychometric properties (internal consistency  $\alpha = 0.81$ ) for use in the Brazilian population (Teixeira & Dias, 2005).

In order to verify the self-efficacy related to volleyball, the athletes responded to the Volleyball Self-efficacy Scale (VSES) (Machado, 2018), which evaluates the expectations of efficacy by measuring the strength of the athlete's belief in his or her ability to perform the actions necessary to achieve a certain objective in the sport. The athletes reported the strength of the belief in their efficacy (expectations of efficacy), related to the individual ability to effectively perform each skill during matches on a scale from 0 to 100 points (with unit intervals of 10). On this scale, 0 (zero) corresponds to "Nothing" (the athlete does not believe in his/her ability); 50% "Moderately" (indicating a moderate degree of belief in his/her ability); and 100% "Completely" (when the individual is completely convinced in his/her ability to perform).

The instrument comprises 19 items, distributed in three dimensions: 1) Self-efficacy in the Game; 2) Defensive Self-efficacy in Volleyball; and 3) Offensive Self-efficacy in Volleyball. Twelve items refer to Self-efficacy in the Game (e.g., "Recovering quickly from an error"). Four items refer to Defensive Self-efficacy in Volleyball (e.g., "Being able to guide your team and lead the court"), and three items refer to Offensive Self-efficacy in Volleyball (e.g., "Setting a hard point"). With such data, it is possible to obtain an average score for each dimension and a total score of the instrument (General Self-efficacy in Volleyball) from the athletes'

**Table 1.** Age range and time of volleyball practice of the athletes investigated.

	Age				Practice time			
	Minimum	Maximum	Mean	SD	Minimum	Maximum	Mean	p-value
Male	18	41	25.34	5.16	2	30	10.65	5.34
Female	16	41	24.59	5.77	2	27	11.49	5.12
Total	16	41	24.88	5.51	2	30	11.12	5.24

SD: standard deviation.

responses to the three dimensions that make up the instrument. Considering the specifics of the libero player's function (reception and defense), Dimension 3 related to Offensive Self-Efficacy in Volleyball was taken from the evaluation of these athletes, using only two dimensions (Self-efficacy in the Game and Defensive Self-efficacy in Volleyball) and the average of the two dimensions, which corresponds to General Self-efficacy in Volleyball for Libero.

In general, the instrument demonstrated good psychometric properties ( $\chi^2 = 447.78$ ;  $df = 148$ ;  $S-B\chi^2 = 354.20$ ;  $p < 0.05$ ,  $RMSEA = 0.08$ ,  $NNFI = 0.90$ ;  $CFI = 0.92$  and  $IFI = 0.92$ ). Overall reliability  $\alpha = 0.92$ ; Compound reliability (CR) = 0.96; Coefficients of  $\alpha$  and CR for each dimension ranged from 0.87 to 0.94) which makes it reliable for use in academic investigations. In addition, the indicators of Mean Extracted Variance (AVE) varied between 0.57 and 0.71 and the Chi-square differences ( $\chi^2 = 23.55$ ,  $df = 16$ ;  $p = .10$ ) pointed to factor invariance for the sex ( $p < 0.001$ ).

## Procedure

The procedures for data collection involved prior contact with the Brazilian Volleyball Confederation and club officers and technical committees for authorization in conducting the survey. With the approval of the Research Ethics Committee of the Health Sciences Sector/SCS, of the Federal University of Paraná (opinion nº 1,574,185), the athletes were invited to participate in the research and, if they agreed, they should sign the Informed Consent Term. In the case of athletes under 18 years old, the term of Consent of the minor and its guardian was requested.

Data collection took place, effectively, in the training gymnasiums of each participating club or in the hotels where the athletes stayed, in case of impossibility of collection in the gymnasium. The athletes were asked to answer the questionnaires before or after the training sessions, according to the possibility of the athlete himself and the authorization of the technical commission. The data collection period comprised the months of October 2016 to March 2017, corresponding to the competitive calendar of the *Superliga*,

and the athletes took around 12 minutes to complete the questionnaire.

## Statistical analysis

The data obtained from the athletes' responses to EAEGP and VSES in relation to sex, age, and practice time were analyzed with SPSS (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp). Kolmogorov Smirnov's test was performed to test the normality of the data. As normality was not plausible, the Kruskal Wallis test was used. To determine the impact of sex, age, and practice time on overall self-efficacy and volleyball self-efficacy, Spearman correlations between the analyzed variables were performed. In addition, delta values of these correlations were determined to determine the impact of results (Espírito Santo & Daniel, 2015). GPower 3.1.9.4 software was used to analyze the effect size (Faul, Erdfelder, Lang, & Buchner et al., 2007). The type of analysis was post hoc. The test power found was .93, and the value of  $z = 1.95$ . The level of significance adopted in all tests was  $p < .05$ .

## RESULTS

The results of the averages of General Self-Efficacy Perceived in Volleyball and Self-Efficacy in Volleyball, and the correlations between the dimensions of self-efficacy, age, and practice time of athletes, as well as delta values, are presented below.

Low correlation was found in the General Self-Efficacy Perceived for the female group ( $r = 0.22$ ;  $p < 0.01$ ;  $\Delta = 3.55\%$ ) and when considering the whole group ( $r = 0.25$ ;  $p < 0.01$ ;  $\Delta = 3.35\%$ ) in relation to age and time of practice. It is noticed that the delta value in relation to age is greater than the practice time, so age seems to influence this variation more (Table 2).

In general, the averages of self-efficacy of Brazilian volleyball elite athletes were  $79.62 \pm 12.50$  for Self-efficacy in the Game,  $74.24 \pm 20.16$  for Defensive Self-efficacy in Volleyball,  $71.57 \pm 17.82$  for Offensive Self-efficacy in Volleyball, and  $75.14 \pm 13.18$  for Global Self-efficacy in Volleyball.

**Table 2.** Correlations between General Perceived Self-Efficacy, age and athletes' practice time.

General self-efficacy perceived	Age (r-value)	$\Delta$ (%)	Practice time (r-value)	$\Delta$ (%)
Male	0.23	-	0.16	-
Female	0.22**	3.55	0.24**	1.86
Total of athletes	0.25**	3.35	0.21**	1.95

\* $p < 0.05$ ; \*\* $p < 0.01$ .

The mean values of the dimensions of self-efficacy were similar between the male and female groups, not showing statistically significant differences between them. However, it was observed a small elevation in the Offensive Self-Efficacy in Volleyball when it is the male group ( $77.14 \pm 21.92$ ) in comparison to the female group ( $70.73 \pm 27.93$ ) (Table 3).

The delta value of variation between groups for age was 2.11% (male), 2.13% (female) and 2.12% (total). The delta values were very similar between male and female groups, that is, age seems to influence in a similar way between sex (Table 4). Analysis were also performed considering the dimensions of self-efficacy, i.e., at times of play and in the defensive and offensive phases of volleyball. There was a significant correlation, but weak, between the dimensions of self-efficacy and the groups analyzed, except for the male group in the dimension of Offensive Self-Efficacy in Volleyball ( $r = 0.07, p < 0.05$ ).

When correlated the data of Global Self-Efficacy with the athletes' practice time, significant correlations were verified in all groups (male, female, and in the total), with the highest values found for the female athletes ( $r = 0.36, p < 0.01$ ), but the value of the delta of variation was higher for the group of men (6.29%) (Table 5). When verifying the relationship between the time of practice and the dimensions of the self-efficacy of volleyball, significant correlations were observed, however weak, of the Self-Efficacy in the Game and Defensive Self-Efficacy in Volleyball with all the groups of athletes. Regarding the dimension Offensive Self-Efficacy in Volleyball, a significant but weak correlation ( $r = .18, p < 0.05$ ) was found in the group of female athletes.

The practice time showed delta values greater than the delta values in relation to age, which suggests that the time of practice influences self-efficacy more than age. It was also observed that the greatest impact on the value of the delta

**Table 3.** Average values of self-efficacy of athletes considering sex.

	Male	Female	Kruskal Wallis Test
Self-efficacy in the game	79.31± 12.21	78.76± 13.71	0.89
Defensive self-efficacy in volleyball	73.61± 19.07	73.17± 21.13	0.19
Offensive self-efficacy in volleyball	77.14± 21.92	70.73± 27.93	0.99
Global self-efficacy in volleyball	77.69± 11.78	76.21± 14.11	0.37

$p < 0.05$ .

**Table 4.** Correlation between self-efficacy in volleyball and the age of athletes.

	Age					
	Male (r-value)	Δ (%)	Female (r-value)	Δ (%)	Total of athletes (r-value)	Δ (%)
Global self-efficacy in volleyball	0.24**	2.11	0.37**	2.13	0.33**	2.12
Self-efficacy in the game	0.25**	2.17	0.32**	2.23	0.30**	2.21
Defensive self-efficacy in volleyball	0.22**	1.95	0.34**	2.00	0.29**	1.98
Offensive self-efficacy in volleyball	0.07	-	0.25**	1.90	0.20**	1.99

\*\* $p < 0.01$ .

**Table 5.** Correlation between self-efficacy in volleyball and athletes' practice time.

	Volleyball practice time					
	Male (r-value)	Δ (%)	Female (r-value)	Δ (%)	Total of athletes (r-value)	Δ (%)
Global self-efficacy in volleyball	0.19*	6.29	0.36**	5.63	0.29**	5.91
Self-efficacy in game	0.20**	6.44	0.34**	5.85	0.28**	6.10
Defensive self-efficacy in volleyball	0.23**	5.91	0.37**	5.36	0.31**	5.59
Offensive self-efficacy in volleyball	0.01	-	0.18*	5.15	0.10	-

\* $p < 0.05$ ; \*\* $p < 0.01$ .

of variation (6.44%) was in the group of male athletes in the dimension Self-efficacy in the Game, which means that this variable was the one that most influenced the self-efficacy of this group (Table 5).

## DISCUSSION

The objective of the present study was to verify the self-efficacy of elite Brazilian volleyball players, both in terms of general and volleyball related self-efficacy, considering sexes, age, and time of practice.

Regarding the Perceived General Self-Efficacy, the results of the present study demonstrated a significant correlation for female athletes, as well as when the group was evaluated without separating it by sex (male and female athletes), showing that the older the age and the longer the practice time, the greater the general self-efficacy of the athletes. In the specific context of high-performance volleyball, it was possible to understand the athletes' self-efficacy in specific moments of the game (Self-Efficacy in the Game, Defensive Self-Efficacy in Volleyball, and Offensive Self-Efficacy in Volleyball).

In general, it was observed that the athletes have satisfactory levels of self-efficacy, without significant differences between the sexes, but the values were slightly higher among male athletes. In addition, the data revealed that, although weak, the significant correlations reinforce the idea that the more age and practice time, the higher the self-efficacy. The variables age and time of practice seem, in fact, to exert important influences on the formation of personal efficacy beliefs (Bandura, 1986; Feltz et al., 2008). Factors such as personal experiences, verbal persuasion, and physiological state may contribute to the formation of self-efficacy beliefs (Bandura, 1997; Feltz et al., 2008). As personal experiences linked to past experiences (Bandura, 1986) are related to the formation of personal efficacy beliefs, age and time of practice can also strengthen self-efficacy beliefs since the more experienced, the more self-confident the individual is (Feltz et al., 2008).

Over the years of practice, cognitive processing, which encompasses processes of attention, memory, and information integration, the ability to interpret in various ways, and the ability to discern, think and integrate relevant sources of efficacy information, increases with the development of cognitive skills. However, cognitive processing requires knowledge of the skills needed for different activities and self-knowledge of skills through self-efficacy beliefs (Pajares & Olaz, 2008). In this sense, self-efficacy can be understood as the construct that facilitates reciprocal determinism between the

psychological (personal determinism) and the influence of the environment (environmental determinism); between the interpretation of personality characteristics and the external contingencies of behaviors; between beliefs in resources of confrontation and the interpretation of social signals that will allow them to be put into operation (González, 2017).

It is worth noting that cognitive processing does not occur during the entire time the person performs actions because, in the usual activities, people do not continuously reassess their abilities, as this would involve excessive time spent in redundant self-referential thinking. Therefore, cognitive processing can occur in an imprecise way, as it happens in new situations, in which people have insufficient information about their performance and then need to make inferences about their ability based on other situations. It may also occur that personal factors (for example, the bias of attention, memory, or interpretation) distort the processes of self-evaluation, leading to an inaccurate perception of successes or failures (Bandura, 1986, 1997).

In fact, events of personal influence such as thought processes, motivation regulation, performance level, emotional states, and changes in environmental conditions are pointed out by Bandura (2012) as important sources for building beliefs of personal efficacy. Blecharz et al. (2014) also reinforce this idea, stating that the environment affects beliefs of efficacy by acting as mediators, affecting behavior and other outcomes. Therefore, environmental factors are expected to operate indirectly through cognition of efficacy (Bandura, 1997). Thus, it is plausible to expect that the role of environmental factors related to the sport will also influence the formation of athletes' efficacy beliefs (Feltz et al., 2008).

In the sports context, López, Granado, Lira, & Cerrato (2018) reinforce that in professional or elite sports, as the demands and expectations of the athletes are higher, due to the increase in charges to obtain a good sports result, one must consider the need to observe differences between the ages of the athletes, as it is found in youth sports. A study that followed age, past performance, and current performance levels revealed that football players who overestimated their skills to a greater extent (compared to players who underestimated their skills) were less likely to produce a high level of performance in the future (Hofseth, Toering, Jordet, & Ivarsson, 2017). This suggests that unrealistic perceptions, even if positive, may have negative effects on performance, requiring athletes to consider realistic levels of their abilities to progress and reach their best potential. The perception of oneself, adequate or inadequate, will influence the planning of technical-tactical actions, the objectives, and the mobilization of psychological and physical resources to develop

a good offensive or defensive action at the right moments and, consequently, in the athlete's performance, positive or negative, respectively (González, 2017).

According to Feltz et al. (2008), athletes' credibility can be influenced by direct appeal, inspiring messages, expectations, attributions, and feedback, helping to reinforce their beliefs in their ability to reach their goals. Furthermore, Blecharz et al. (2014) emphasize the need for further research to separate the role played by different types of efficacy beliefs, in particular self-efficacy beliefs that refer only to sports performance and the sports environment, from the roles of beliefs on skills to deal with barriers related to non-sport environments. Such aspects may explain, in part, the divergences observed in this study regarding the sex of athletes. Regarding general self-efficacy, a higher positive and significant correlation was found between age and practice time for female athletes than for male athletes. On the other hand, regarding self-efficacy in the specific context of volleyball, although no significant differences were found between sexes, male athletes showed a tendency to be more self-efficacy than female athletes.

Feltz et al. (2008) highlight that when self-efficacy is measured and tested within the limits of theory, it is consistently and positively related to athletic performance, motivational behavior, and other cognition and effects related to achievement. However, systematic reviews about self-efficacy instruments in sport and self-efficacy instruments in volleyball (Machado et al., 2014, 2018) presented instruments that have no validation (Blecharz et al., 2014; Gilson, Reyes, & Curnock, 2012; Gomes, Miranda, R., Filho, M. G. B., & Brandão, 2012; Lox, 1992; Zetou, Vernadakis, N., Bebetos, E., & Makraki, 2012) or whose validation process has important limitations (Guicciardi, Fadda, & Delitala, 2016), which limits the discussion of the findings in this study with other research. Therefore, comparing the data obtained in this study with other research should be made with caution.

In the sports context, sex differences have been studied to understand how men and women engage in this type of activity. In general, what can be highlighted is that men are more likely to perceive themselves as more self-effective than they actually perform, while women tend to report devaluation of their performance when evaluated by self-reported instruments (Feltz et al., 2008). In a study of Taekwondo athletes, male athletes scored more than women in specific self-efficacy, leading the authors to hypothesize that women have lower motor performance than men, which could lead them to a lower score in specific self-efficacy (Estevan et al., 2016).

Although the findings of sex in the self-efficacy research are unclear, self-efficacy tends to be greater when an activity is culturally perceived as appropriate for sex. Thus, women tend to be less self-efficacy when the task involved is considered sex-neutral or receive clear feedback on their performance and placed in uncompetitive or non-comparable situations (Feltz et al., 2008).

Differentiated patterns of male and female involvement in sport are being found (Deaner & Smith, 2013; Senefeld, Smith, & Hunter, 2016). Historical and socio-cultural issues have influenced the results of these investigations, as women's sport went through moments of prohibition by law until 1979, which brings reflexes to the present (PNUD, 2017). Women have increasingly conquered their space in the sports context but are still far from equal opportunities with men, as they face barriers related to few opportunities, prejudice, investment inequalities, and low media representation (Deaner & Smith, 2013; Senefeld et al., 2016). Seeking to mitigate the factors that lead to such cultural and contextual differences can help in cognitive and psychological aspects, directly influencing perceptions of self-efficacy in both sexes.

In addition to historical and cultural issues, data from a scholarship program focused on high-performance athletes until 2016 in Brazil indicate that 60.24% of the total scholarships offered were for male athletes and only 39.76% allocated to female athletes (Mezzadri, 2016). Another study sought to know in depth the determinants that guide the evaluation of sports sponsorship by the managers of the master brands sponsoring the volleyball teams of the 2017–2018 season of the *Superliga*. The results showed that although historically, the sponsoring companies showed greater interest in men's sports, the results of the season evaluated in this study showed a balanced interest of the companies in the sponsorship of female and male teams. However, determinants of brand image and relationship stood out in the men's teams, while the focus on the consumer, brand image, and visibility prevailed in the women's teams (Leite, 2019). These financial incentives from sponsors or development agencies can be expected by athletes, encouraging or discouraging them from believing in their skills and supporting them for success or failure.

Such evidence points out that many variables can interfere with the personal efficacy beliefs of high-performance volleyball athletes. It is of paramount importance that future studies give continuity to the investigations of the factors contemplated in this study and contemplate other events of personal influences, such as the regulation of own motivation, thought processes, performance level, emotional states or alteration of environmental conditions, as Bandura (2012) pointed out.

The present study had some limitations related to the characteristic of the cross-sectional study, which portrays the feeling of the athletes when answering the questionnaire, in which there may be some type of interference in the responses in virtues of the progress/classification of the team during the competition. However, considering that the collections were carried on most teams regardless of classification, it is believed that this fact did not tendentially influence the data as a whole.

## CONCLUSION

The self-efficacy of elite volleyball players revealed some of the factors that can influence the perception of skills and the belief in the ability to perform certain activities, such as age and time of practice. When it comes specifically to volleyball, the athletes revealed good levels of self-efficacy. However, the fact that the male group obtains higher levels in all aspects leads to the need to seek actions to minimize socio-cultural differences that conduct to different perceptions of self-efficacy. Sports programs should consider these issues in order to understand how different intrinsic and extrinsic aspects can affect self-efficacy.

Correlations between General Self-Efficacy Perceived, age, and practice time have had a greater impact on the women's group, strengthening athletes to a more positive perception of their sports skills since specific efficacy builds and mediates the effects of overall efficacy. When considering age, time of practice in volleyball, and self-efficacy in the different dimensions of the sport, it was perceived that the positive correlation between these variables confirms the importance of equalizing and expanding opportunities for sports participation and, consequently, improving self-efficacy in sport. Thus, these variables represent specific important aspects for the construction and solidification of positive beliefs of athletes regarding their abilities.

The study results show evidence that age and time of sports practice do not always increase athletes' self-efficacy. As much as these variables may be factors of strong influence, the belief in efficacy can be related to the perception of the context, the opponent, the moment, and the circumstances in which the athlete is involved. Thus, it is suggested the sequence of studies in this area, mainly regarding the understanding of the influences on the athlete's self-efficacy at times of competition, such as beginning, middle or end; after winning or losing; matches at home or away home; with or without supporting crowd. It is also suggested for future studies to analyze the same theme with high-performance beach volleyball athletes to verify how the self-efficacy construct is presented in this sample of athletes.

## ACKNOWLEDGMENTS

Especial a todos os profissionais que participaram deste estudo, atletas que gentilmente despenderam seu tempo pesquisando. A Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) para a bolsa concebida.

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