

Ansiedade em atletas de Jiu-Jitsu: diferenças de acordo com idade e nível competitivo

Anxiety in Jiu-Jitsu athletes: differences according to age and competitive level

Ansiedad en los atletas de Jiu-Jitsu: diferencias según la edad y el nivel competitivo

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Resumo

O objetivo deste estudo foi analisar a ansiedade pré-competitiva com base na faixa etária e classificação competitiva de 26 atletas de jiu-jitsu com idade entre 25.5 ± 5.24 anos. O

instrumento utilizado foi o Inventory of Anxiety State Competitive-2 (CSAI-2). A análise dos dados foi realizada pelo Shapiro-Wilk, teste t de Student independente, correlação de Pearson e regressão linear simples ($p < 0.05$). Os resultados revelaram que atletas mais velhos e mais competitivos apresentaram menor magnitude de ansiedade cognitiva ($p < 0.05$). Observamos uma associação moderada e inversa ($r = -0.63$, $p < 0.05$) entre ansiedade cognitiva e idade, representando 38% ($R^2 = 0.38$) da variação da ansiedade cognitiva em atletas. Concluiu-se que a idade e a classificação competitiva podem ser consideradas fatores intervenientes na ansiedade pré-competitiva dos atletas de jiu-jitsu, especificamente na ansiedade cognitiva.

Palavras chave: Ansiedade competitiva; Jiu Jitsu; Psicologia do esporte; Estado de ansiedade; Atletas.

Abstract

The aim of this study was to analyze pre-competitive anxiety based on the age range and competitive classification of 26 jiu-jitsu athletes aged 25.5 ± 5.24 years. The instrument used was the Competitive State Anxiety Inventory-2 (CSAI-2). Data analysis was conducted using the Shapiro-Wilk, independent Student's t-test, Pearson's correlation and simple linear regression ($p < 0.05$). The results revealed that older and more competitive athletes presented a lower magnitude of cognitive anxiety ($p < 0.05$). We observed a moderate and inverse association ($r = -0.63$, $p < 0.05$) between cognitive anxiety and age, accounting for 38% ($R^2 = 0.38$) of the variance of cognitive anxiety in athletes. It was concluded that age and competitive classification can be considered as intervening factors in the pre-competitive anxiety of jiu-jitsu athletes, specifically in cognitive anxiety.

Keywords: Competitive anxiety; Jiu Jitsu; Psychology of sport; Anxiety-status; Athletes.

Resumen

El objetivo de este estudio fue analizar la ansiedad precompetitiva en función del rango de edad y la clasificación competitiva de 26 atletas de jiu-jitsu de $25,5 \pm 5,24$ años. El instrumento utilizado fue el Competitive State Anxiety Inventory-2 (CSAI-2). El análisis de los datos se realizó mediante la prueba t de Student independiente de Shapiro-Wilk, Pearson correlación y regresión lineal simple ($p < 0.05$). Los resultados revelaron que los atletas mayores y más competitivos presentaron una menor magnitud de ansiedad cognitiva ($p < 0.05$). Observamos una asociación moderada e inversa ($r = -0.63$, $p < 0.05$) entre la ansiedad cognitiva y la edad, lo que representa el 38% ($R^2 = 0.38$) de la varianza de la ansiedad cognitiva en los atletas. Se concluyó que la edad y la clasificación competitiva pueden

considerarse factores intervinientes en la ansiedad precompetitiva de los atletas de jiu-jitsu, específicamente en la ansiedad cognitiva.

Palabras clave: Ansiedad competitiva; Jiu Jitsu; Psicología del deporte; Estado de ansiedad; Atletas.

1. Introduction

Jiu-jitsu was originated in the eastern culture, as a martial art used for combat with and without weapons. Combat sports, including jiu-jitsu, in their competitive form, divide their athletes by weight in order to create more balanced fights with similar strength and agility (Artioli et al., 2010). This factor leads to the main roles of physical, technical, tactical, morphological, and psychological aspects (Franchini, Branco, Agostinho, Calmet, & Candau, 2015).

In the preparation of the athletes, it is common to train with a high volume of specific modality techniques and, routinely, the recovery time between the training sessions turns out as inadequate (Mendes et al., 2013). This reality precedes poor food consumption, induced vomiting, restriction of liquid intake and use of laxatives/diuretics, with the premise of inducing rapid weight loss to reach compatible weight with the category (Fortes, Lira, & Ferreira, 2017; Morais-Junior, Bastos, Silva, Valido, & Brito, 2017).

In addition to adverse effects on the physiological performance (Abdelmalek, Chtourou, Souissi, & Tabka, 2015; Franchini, Brito, & Artioli, 2012), quick reduction in body mass may affect cognitive performance (Fortes et al., 2017). Among these cognitive components, it stands out pre-competitive anxiety, one of the most recurrent emotional states in competitive sport. Anxiety is defined as a negative emotional state that is characterized by thoughts of nervousness, concern, and apprehension associated with physical sensations (Nascimento, Bahiana, Nunes-Junior, & Esp, 2012; Martens, Vealey, & Burton, 1990). In the context of sports psychology, researches have used the multidimensional theory of competitive anxiety as a theoretical basis for the study of anxiety (Fernandes, Nunes, Raposo, & Fernandes, 2014; Silva, Araújo, Arantes, Neto, & Melo, 2018; Sonoo, Gomes, Damasceno, Silva, & Limana, 2010).

The theory comprises three main components; the first component is cognitive, which involves thoughts and doubts about your own performance and the competitive occasion, as well as a judgment of yourself. The second component consists of a somatic disorder, which is characterized by physiological sensations of excitation, such as increased sweating,

heartbeats and muscle tension, altered breathing, and cold in the stomach. Subsequently, the third dimension is called self-confidence, which is the belief on the part of the individual in their abilities to achieve a positive performance (Martens et al., 1990).

Some studies have sought to assess anxiety in combat sports, such as Olympic wrestling (Abreu, Nascimento, Santos, Sales, & Ferreira, 2015) and karate (Silva et al., 2018). However, the literature lacks the effect of anxiety on jiu-jitsu athletes. Thus, being a sport that cognitive function is essential to decide when and which is the best attack and defense movements, addressing such influences on jiu-jitsu athletes is crucial. Thereby, this is the gap this study intends to move forward.

However, the objective of this study was to evaluate the pre-competitive anxiety of jiu-jitsu athletes according to age and competitive rating, in addition, to check the relationship of pre-competitive anxiety with age and performance. The hypothesis of the study is that younger and less competitive athletes have higher levels of anxiety and lower levels of self-confidence.

2. Méthods

Participants

26 Jiu-Jitsu athletes (21 male and 5 female) aged 18-33 (25.5 ± 5.24 years) participated in this study, participating in a regional championship held in the city of Petrolina, Pernambuco from Brazil.

The selection of participants was non-probabilistic, adopting the convenience technique and the inclusion criteria were the following: 1) to be over 18 years old; 2) to be enrolled in the competition and. Only the athletes who signed the free and clear consent term and who verbally expressed the desire to participate in the research were included in the study.

Instruments

Competitive State Anxiety Inventory (CSAI-2)

Competitive State Anxiety Inventory (CSAI-2) Originally developed by Martens Vealey e Burton (Martens et al., 1990)] and validated for the Brazilian context by Fernandes,

Raposo e Fernandes (Fernandes, Vasconcelos-Raposo, & Fernandes, 2012). This instrument consists of 27 items distributed in three sub-scales: cognitive anxiety, somatic anxiety and self-confidence. Items are answered on a Likert scale, in a continuum that varies between “nothing” (1) e “quite” (4). The alpha ranged from $\alpha = 0.72$ to $\alpha = 0.78$ for the participants in this survey, indicating strong data reliability (Hair, Risher, Sarstedt, & Ringle, 2019).

Age and competitive rating

The age was analysed by means of an open question, in which the participant should point out the age in years. For the comparison of pre-competitive anxiety according to age, athletes were divided into two groups (up to 24.5 and more than 24.5) according to the process of “Median Split” (<24.5 e >24.5 years).

For the comparison of pre-competitive anxiety according to age, athletes were divided into two groups (up to 24.5 and more than 24.5) according to the process of. Verificar redação. From the final standings, the athletes were divided into two groups: 1) Finalist: Athletes finished in first and second place (n =19)); e 2) No-Finalist: Athletes who finished the competition in 3rd and 4th place (n = 7).

Procedure

The procedures adopted in this research obeyed the criteria of Ethics in research with human beings as Resolution n: 466/12 of the National Health Council. The study is integrated with the institutional project approved by the Ethics Committee in research the University Federal do Vale do São Francisco (n 1.648.086).

Initially, contact was made with the Organizing Committee of the Championship to request the authorization to carry out the data collections with the athletes. Ficou confuso. O terceiro critério de inclusão era não ter lutado no dia. Aqui, relata que a coleta foi reallizada pouco tempo antes da luta. Explicar melhor ou corrigir. The collections were held at the competition site approximately 60 minutes before each athlete's first fight. The application of the questionnaires was carried out individually in a private place, and the completion of the questionnaires lasted approximately 10 minutes.

Data analysis

The preliminary analysis of the data was carried out by means of the normality test of Shapiro-Wilk. As the data presented normal distribution, the mean and standard deviation were used for the characterisation of the results. The test was used is t de student independent for the comparison of pre-competitive anxiety according to the groups (age range and competitive level). The effect size (d) was also calculated using the Model proposed by Cohen (1992) for differences in the values of two independent groups. According to Cohen's criteria, a value $d = 0.20$ represents small effect size; $d = 0.50$, medium; and $d = 0.80$, large. The correlation of anxiety dimensions with age and the competitive classification was made by the correlation coefficient of Pearson.

This was conducted by a simple, linear regression model to ascertain the percentage of explained variance of age and rank competitive (independent variables) on the subscales of anxiety (dependent variable) that showed significant correlation ($p < 0.05$). Although the sample is considered small for regression models, Knofczynski and Mundfrom (2008) they have ensured that the minimum of two subjects is already acceptable for a simple or multiple regression model to have a good prediction level. The *Variance Inflation Factors* (VIF) were calculated and no variable showed multicollinearity indicators ($VIF < 5.0$). All analyses were conducted in the SPSS 22.0 software, adopting the level of significance of $p < 0.05$.

3. Resultados

Results

When age-related anxiety was compared (Table 1), there was a significant difference between groups only for cognitive anxiety ($p=0.002$). As shown in Table 1, athletes above 24.5 years old presented lower scores ($x = 1.33$) when compared to younger athletes ($x = 2.35$). This effect is considered large ($d > 0.50$). When athletes were stratified according to the competitive classification in the competition (finalists =1st and 2nd place; and non-finalists = 3rd and 4th place), athletes differ statistically significantly for cognitive anxiety ($p = 0.046$) (Table 1), indicating that the non-finalists presented with greater cognitive anxiety. This difference showed a large effect ($d > 0.50$).

Table 1. Comparison of pre-competitive anxiety of jiu-jitsu athletes according to age and competitive rating.

GROUPS		Competitive Anxiety		
		Cognitive Anxiety	Somatic Anxiety	Self-Confidence
		x (dp)	x (dp)	x (dp)
Age range	Up to 24,5 (n=13)	2.35 ± 0.89	2.48 ± 0.77	2.66 ± 0.87
	above 24,5 (n=13)	1.33 ± 0.41	1.96 ± 0.56	3.03 ± 0.73
	p-value	0.002*	0.063	0.256
	ES	1.47	0.77	-0.46
Competitive rating	Finalist (n=19)	3.03 ± 0.73	2.14 ± 0.69	2.97 ± 0.80
	Non-finalist (n=7)	2.37 ± 0.81	2.45 ± 0.76	2.48 ± 0.78
	p-value	0.046*	0.340	0.176
	ES	-0.89	-0.42	0.62

* Significant difference- $p < 0.05$. Note: ES = effect size. Independent *Student t*-test. Source: Authors.

There was a significant correlation ($p < 0.05$) of cognitive anxiety with age ($r = -0.63$), indicating an inverse relationship between variables (Table 2). After the correlation analyses, simple linear regression was performed to analyze the age variance on cognitive anxiety. The model revealed that 38% of cognitive anxiety variance was explained by age ($F = 16.053$; $\beta = -0.63$; $p = 0.001$). It is noted that at each increase of 1 standard deviation in the age unit there was a reduction of 0.63 standard deviations in the cognitive anxiety unit.

Table 2. Correlation of pre-competitive anxiety with age and competitive rating.

Pre-competitive anxiety	Age	Competitive rating
Cognitive Anxiety	-0.63*	0.16
Somatic Anxiety	-0.34	0.15
Self-Confidence	0.29	-0.18

*significant correlation ($p < 0.05$) –Pearson correlation. Source: Authors.

4. Discussion

The purpose of this study was to evaluate the pre-competitive anxiety of jiu-jitsu athletes according to their age and competitive rating. The main findings were that the older athletes with the best competitive rating had lower levels of cognitive anxiety, in addition to the inverse association between cognitive anxiety and age.

When compared to anxiety according to age, it was observed that younger athletes have higher levels of cognitive anxiety than older athletes. This finding seems to indicate that negative thoughts and concerns about the competition tend to decrease as athletes become more experienced. Such a find goes to meet the Martens et al. (1990), which points out that cognitive anxiety tends to decrease as the athlete increases the practice time and experience in the task.

These results are similar to those of the validation study of the CSAI-2R performed by Fernandes et al. (2014). Among the studies that evaluated combat sports, about the influence of age on anxiety we might affirm that the more experience in the sport, the smaller the magnitude of anxiety (Fernandes et al., 2014; Interdonato, Miarka, & Franchini, 2013).

Competitive anxiety is closely related to stress (Martens et al., 1990). Therefore, athletes who perceive competition as a stressful event commonly demonstrate a greater magnitude of competitive anxiety. Considering the combat sports athletes who adopt the rapid weight loss show a higher level of stress (Fortes et al., 2017), it is reasonable to assume athletes that use rapid weight loss might increase, even indirectly, the magnitude of the anxiety. Moreover, competitive and younger athletes have been adopting with greater frequency strategies of rapid loss of weight, which could explain the differences of anxiety cognitive between younger athletes and older.

When analyzing competitive anxiety as a function of the competitive rating, it was found that the finalists presented a lower level of cognitive anxiety compared to the non-

finalists. Corroborating to the findings of this research, Paludo, Nunes, Simões and Fernandes (2017) found that lower cognitive anxiety values tend to be associated with satisfactory results in sports performance. According to the multidimensional theory of competitive anxiety (Martens et al., 1990), cognitive anxiety concerns the athlete's negative expectations about his performance. Therefore, is essential well-prepared coaches and sports psychology experts who are able to manage such expectations, which if not controlled may result in a performance reduction (Capranica et al., 2017).

As a transversal study and with a single instrument (self-reporting scale), the data obtained allow correlations between variables, but not causality inferences, which is one of the limitations of the research. In addition, the number of participants impairs some comparisons, such as anxiety levels between different years of experience and between the sexes. In this way, future researches should carry out longitudinal designs, making several measures of competitive anxiety in different championships.

5. Conclusion

It was concluded that age and competitive rating might be considered as contributing factors in the cognitive anxiety of jiu-jitsu athletes. It is noted that older athletes with better competitive rating reported fewer negative thoughts and nervousness moments prior to the competition. From a practical point of view, we highlight the importance of the experience in the modality and the setting of goals for the achievement of sports success as ways to control the symptoms of cognitive anxiety in moments prior to the competition.

References

Abdelmalek, S., Chtourou, H., Souissi, N., & Tabka, Z. (2015). Caloric restriction effect on proinflammatory cytokines, growth hormone, and steroid hormone concentrations during exercise in Judokas. *Oxidative medicine and cellular longevity*, 2015.

Abreu, E. S., de Freitas Nascimento, J., Santos, A. L. B., Sales, C. D. V., & Ferreira, H. S. (2015). Estratégias para perda de peso no período pré-competitivo e suas repercussões em atletas de luta olímpica. *Revista Brasileira de Nutrição Esportiva*, 9(50), 137-143.

Artioli, G. G., Franchini, E., Nicastrò, H., Sterkowicz, S., Solis, M. Y., & Lancha, A. H. (2010). The need of a weight management control program in judo: a proposal based on the successful case of wrestling. *Journal of the International Society of Sports Nutrition*, 7(1), 15.

Capranica, L., Condello, G., Tornello, F., Iona, T., Chiodo, S., Valenzano, A., Cibelli, G. (2017). Salivary alpha-amylase, salivary cortisol, and anxiety during a youth taekwondo championship: An observational study. *Medicine*, 96(28).

Cohen, J. (1992). A power primer. *Psychological bulletin*, 112(1), 155.

Fernandes, M. G., Nunes, S. A. N., Raposo, J. V., & Fernandes, H. M. (2014). Efeitos da experiência nas dimensões de intensidade, direção e frequência da ansiedade e autoconfiança competitiva: Um estudo em atletas de desportos individuais e coletivos. *Motricidade*, 10(2), 81-89.

Fernandes, M. G., Vasconcelos-Raposo, J., & Fernandes, H. M. (2012). Propriedades psicométricas do CSAI-2 em atletas brasileiros. *Psicologia: Reflexão & Crítica*, 25(4), 679-688.

Franchini, E., Branco, B. M., Agostinho, M. F., Calmet, M., & Candau, R. (2015). Influence of linear and undulating strength periodization on physical fitness, physiological, and performance responses to simulated judo matches. *The Journal of Strength & Conditioning Research*, 29(2), 358-367.

Franchini, E., Brito, C. J., & Artioli, G. G. (2012). Weight loss in combat sports: physiological, psychological and performance effects. *Journal of the International Society of Sports Nutrition*, 9(1), 52.

Fortes, L.S.d, da Silva Lira, H. A. A., & Ferreira, M. E. C. (2017). Efeito da rápida perda de massa corporal no desempenho da tomada de decisão em judocas. *Journal of Physical Education*, 28(1), 2817.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24.

Interdonato, G. C., Miarka, B., & Franchini, E. (2013). Análise da ansiedade pré-competitiva e competitiva de jovens judocas. *Revista de Artes Marciales Asiaticas*, 8(2).

Knofczynski, G. T., & Mundfrom, D. (2008). Sample sizes when using multiple linear regression for prediction. *Educational and psychological measurement*, 68(3), 431-442.

Martens, R., Vealey, R. S., & Burton, D. (1990). *Competitive anxiety in sport: Human kinetics*.

Mendes, S. H., Tritto, A. C., Guilherme, J. P. L., Solis, M. Y., Vieira, D. E., Franchini, E., Artioli, G. G. (2013). Effect of rapid weight loss on performance in combat sport male athletes: does adaptation to chronic weight cycling play a role? *Br J Sports Med*, 47(18), 1155-1160.

Morais-Junior, G. S., de Andrade Bastos, A., dos Santos Silva, R. J., Valido, C. N., & Brito, C. J. (2017). Influência da rápida redução da massa corporal sobre o nível de ansiedade pré-competitiva de judocas adolescentes de alto rendimento. *Arquivos de Ciências do Esporte*, 4(1).

Nascimento, F. C., Bahiana, F. F., Nunes-Junior, P. C., & Esp, F. (2012). A ansiedade em atletas de ginástica artística em períodos de pré-competição e competição.

Paludo, A. C., Nunes, S. A. N., Simões, A. C., & Fernandes, M. G. (2017). Relação entre ansiedade competitiva, autoconfiança e desempenho esportivo: uma revisão ampla da literatura. *Psicologia Argumento*, 34(85).

Silva, G. C. B., De Araújo, D. G., Arantes, A. A. C., Neto, S. L. D. A., & De Melo, G. F. (2018). Avaliação psicométrica da ansiedade traço em jovens nadadores brasileiros. *Revista Brasileira de Psicologia do Esporte*, 7(1).

Sonoo, C. N., Gomes, A. L., Damasceno, M. L., Silva, S. R. d., & Limana, M. D. (2010). Ansiedade e desempenho: um estudo com uma equipe infantil de voleibol feminino. *Motriz, Rio Claro*, 16(3), 629-637.

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