

Motivational factors for practicing Brazilian Jiu-jitsu

ROISON LEE FIGUEIREDO CARDOSO¹, LUCIO MARQUES VIEIRA-SOUZA², LINDSEI BRABEC MOTA BARRETO³, JEAN LUCAS ROSA⁴, GISLAINE CRISTINA-SOUZA⁵, ANA CLÉCIA ALVES DOS SANTOS⁶, IZABELA APARECIDA DOS SANTOS⁷, DONIZETE CÍCERO XAVIER DE OLIVEIRA⁸

¹Department of Physical Education, State University of Londrina-UEL, Londrina, Paraná, Brazil.

^{2,4,6}Department of Human Body and Movement, State University of Minas Gerais-UEMG, Passos, Minas Gerais, BRAZIL.

³Department of Education, Federal University of Grande Dourados, Dourados, Mato Grosso do Sul, BRAZIL.

^{2,3,4,6,8}Center for Studies and Research in Physical Activity, Health and Sport-NEPAFISE, State University of Minas Gerais-UEMG, Passos, Minas Gerais, BRAZIL.

²Postgraduate Program in Physical Education, Federal University of Sergipe-UFS, São Cristóvão-SE, Brazil.

^{2,5}Exercise and Nutrition Research Group-GPEN, State University of Minas Gerais-UEMG, Passos, Minas Gerais, BRAZIL.

⁷Postgraduate Program in Rehabilitation and Functional Performance, University of São Paulo, Ribeirão Preto, São Paulo, BRASIL.

⁸Department of Sports Sciences, Federal University of Triângulo Mineiro-UFTM, Uberaba, Minas Gerais, BRAZIL.

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Abstract:

Background: Martial arts have historically played a significant role in the development of societies, serving purposes such as self-defense and warfare. However, the motivations behind practicing martial arts have evolved over time, encompassing social, educational, psychological, health, and competitive aspects. Purpose: This study aims to assess the factors that drive individuals to engage in Brazilian Jiu-jitsu (BJJ), with a specific focus on comparing competitors and non-competitors. Methods: The analysis included a total of forty-seven male BJJ practitioners aged between 18 and 50 years. The participants were divided into two groups for data analysis: competitors (n = 31) and non-competitors (n = 16). To measure exercise motivation, the Exercise Motivation Inventory (EMI-2) questionnaire, validated for use in the Brazilian population, was administered. Descriptive statistics were used for data analysis, followed by an independent samples t-test, with a significance level set at $p \leq 0.05$. Results: The motivational dimensions that had the greatest influence on BJJ practice were Psychological and Physical Condition (index = 4 and 3.5, respectively). They were closely followed by Interpersonal (index = 2.7) and Health and Aesthetics (index = 2.6 for both). However, in the group analysis, the Interpersonal dimension exhibited less relevance among non-competitive practitioners (non-competitors = 2.3 ± 0.73 ; competitors = 2.9 ± 0.98 ; $p = 0.038$). Competitors placed greater importance on factors such as Competition and Social Recognition compared to non-competitors [Competition: competitors = 3.3 ± 1.3 ; non-competitors = 2 ± 1.2 ; $p = 0.001$; Social Recognition: competitors = 2 ± 1.4 ; non-competitors = 1.1 ± 1.1 ; $p = 0.037$]. Moreover, for non-competitive practitioners, the psychological dimension exerted a significantly stronger influence on BJJ practice (non-competitors = 4.4 ± 0.6 ; competitors = 3.8 ± 1.1 ; $p = 0.009$), with stress control being an important contributing factor (non-competitors = 4.4 ± 0.7 ; competitors = 3.5 ± 1.6 ; $p = 0.013$). Conclusion: The factors driving the practice of BJJ can vary between competitors and non-competitors. These findings should be taken into account when designing training programs aimed at fostering motivation for continued participation in sports activities.

Keywords: Combat sports, sport psychology, martial arts, motivation.

Introduction

Due to the demanding nature of work and the prevalent stressors in today's world, psychological disorders, including Burnout syndrome, anxiety disorders, and depression, are becoming increasingly prevalent, particularly among adults (Bezliudnyi et al., 2019). Regular physical exercise or sports participation has emerged as a promising strategy for addressing these issues (Schuch, Vancampfort, 2021). However, in order to initiate and maintain a consistent exercise routine, motivation is crucial. Motivation is a multifaceted concept that varies depending on factors such as age group and gender (Kurniawan et al., 2022).

Within the realm of sports, combat sports hold a significant place. Among the various disciplines in this category, Brazilian Jiu-jitsu (BJJ) has gained substantial popularity and widespread recognition. It has emerged as one of the most highly sought-after practices in gyms and combat training centers, attracting individuals

across all age groups (Aires et al., 2020; Jensen et al., 2017; Lystad, 2015). Its prominence has particularly surged following its evolution and success in martial arts competitions.

Conceptually, traditional Jiu-jitsu is a secular martial art, essentially based on short-distance body combat, in which certain techniques stand out: projection, immobilizations, strangulations, and joint twists (Vicentini & Marques, 2018). Over the years, the literature has shown that the practice of combat modalities such as BJJ has several benefits in psychological, affective, and social aspects and improves motor development (Matsubara & Godoi, 2011) (Vicentini & Marques, 2018). It should be noted that combat sports can be practiced for educational, competitive, and recreational purposes and health promotion (da Silva Duarte et al., 2021).

However, for individuals to seek and persist in the practice of sports, they will have to find reasons that motivate them (de Amorim Oliveira et al., 2013). In this sense, a variable that has been extensively investigated in recent years by sport psychology has been the motivation to practice physical exercise, defined as an essential behavior to initiate, sustain, and determine effort in sport (Sheehan et al., 2018) and characterized as a tendency whose intensity occurs due to the nature of the object to which it is directed and the relationship of the object with the subject. In this way, the individual chooses goals and formulates action projects to achieve them in sports practice, thanks to their own self-determined needs, understood as motivational states. The practice of BJJ can influence moods, especially with participation in competitions (Wolska et al., 2019). Andrade et al. (2019) demonstrated that before, during, and after a competition, BJJ athletes participating in state championships showed a high level of vigor and low levels of depression, anger, fatigue, and mental confusion, and a moderate level of tension.

In addition to the competitive aspect, through learning BJJ, training, and applying different strikes of the modality, a sense of security can be developed and strengthened, as the individual learns a method of self-defense, which makes him capable of facing challenges, whether of a physical or mental nature (Gracie & Gracie, 2003), which can bring different motivations to practitioners of the modality.

In this sense, it is extremely important to understand how the interest in participating in competitions or not can determine the motivational profile of BJJ practitioners. Therefore, the present study aims to evaluate which reasons lead individuals to practice BJJ, comparing competitors with non-competitors.

Material & methods

Participants

The study comprised a sample of 47 male Brazilian Jiu-jitsu (BJJ) practitioners, ranging in age from 18 to 50 years (mean age: 31.8 ± 7.1 years). The participants were recruited from academies located in the central region of Londrina, Paraná, Brazil. To gather information about the participants, an anamnesis was conducted, which included questions regarding age, body mass, weight category, duration of BJJ practice, level of advancement in BJJ, and history of participation in competitions. Based on the collected data, the participants were categorized into two groups: competitors ($n = 31$) and non-competitors ($n = 16$). The research project received approval from the Human Research Ethics Committee of UniFil Londrina, with the assigned reference number 2.450.545.

Procedures and instrument

Initially, visits were conducted to the data collection sites in order to establish contact with the individuals responsible for the institutions. The purpose of these visits was to deliver a letter of introduction from the university and request authorization and collaboration for the research. BJJ practitioners who expressed their willingness to participate in the study were required to sign the Informed Consent Form.

For the purpose of data collection, the Exercise Motivation Inventory (EMI-2) was employed. This inventory has been validated for use in the Brazilian population (Guedes et al., 2012) and aims to assess the primary reasons that drive individuals to engage in physical exercise. According to Guedes and Mota (2016), the EMI-2 is widely recognized as one of the most well-established instruments in the field and is considered a reference in the specialized literature for evaluating the motivations associated with physical exercise. The questionnaire was administered individually, with each participant taking approximately ten minutes to complete. The EMI-2 questionnaire consists of 44 questions that are categorized into five dimensions: Psychological reasons, Interpersonal reasons, Health reasons, Aesthetic reasons, and Physical Condition reasons. Some of these dimensions are further subdivided into subgroups, namely: Psychological reasons - Fun/Well-Being and Stress Control; Interpersonal Motives - Social Recognition, Affiliation, and Competition; Health reasons - Health Rehabilitation and Disease Prevention; Aesthetic reasons - Body Weight Control and Physical Appearance. The Physical Condition reasons dimension does not have any subdivisions (Guedes et al., 2012).

Responses to the EMI-2 questionnaire are measured on a Likert-type scale ranging from 0 to 5 points, where 0 represents "not true for me" and 5 represents "completely true for me". The influence index of each dimension as a motivational factor for initiating physical exercise, specifically in the context of BJJ in this study, is calculated by obtaining the mean of the responses to the items associated with each subgroup within the five dimensions. A higher index value (ranging from 0 to 5) indicates a greater influence of the corresponding motive (Guedes et al., 2012).

Statistical analysis

The data collected in this study were subjected to descriptive statistical analysis, employing measures such as mean, standard deviation, frequency, and percentage. The characterization data of the study participants, as well as the frequency and percentage of responses for each dimension of the reasons for practicing BJJ, along with their respective subgroups, were presented through tables and graphs.

Data tabulation and analysis from the EMI-2 questionnaire were performed using Numbers by Apple (version 3.6.2) and Excel 2013 (Microsoft®, Washington, USA) software. To compare the two groups, namely competitors and non-competitors, the t-Test for independent samples was employed, with the calculation of effect size. The statistical analysis of the data was carried out using the SPSS program (version 20.0; SPSS, Inc., Chicago, IL, USA), with a significance level set at $p \leq 0.05$.

Results

Table 1 presents the characterization of the participants included in this study. Statistical analysis revealed that BJJ practitioners who competed were significantly younger compared to those who did not compete [29.9 ± 7.1 and 35.5 ± 5.5 years, respectively; $t(45) = -2.739$, $p = 0.009$, $r = 0.38$]. The majority of participants (85.1%, $n = 40$) reported practicing BJJ for more than 1 year. However, it is worth noting that a considerable portion of the participants (66%, $n = 31$) were still in the process of training, holding white or blue belts. This trend was consistent among both competitors and non-competitors. The analyzed BJJ practitioners had an average body mass of 84.8 ± 16.4 kg, and the distribution across weight categories was similar. Specifically, 34% represented the Lightweight category, 38.3% the Middleweight category, and 27.7% the Heavyweight category. However, when comparing the distribution based on competition participation, it was observed that the majority of competitors fell into the Middleweight category (42%), while non-competitors were primarily categorized as Lightweight (43.7%).

Table 1. Characterization of Brazilian Jiu-jitsu practitioners.

Analysis groups	Age (years) ^{&}	Body mass (kg) ^{&}	Brazilian Jiu-jitsu practice time [#]	Graduation in Brazilian Jiu-jitsu [#]	Weight category [#]
Total (n= 47)	31,8 ± 7,1	84.8 ± 16.4	< 1 year: n = 7; 14,9% > 1 year: n = 40; 85,1%	Beginners ¹ : n = 31; 66% Advanced ² : n = 16; 34%	Lightweight ³ : n = 16; 34% Middleweight ⁴ : n = 18; 38,3% Heavyweight ⁵ : n = 13; 27,7%
Competidores (n= 31)	29,9 ± 7,1*	86 ± 16.6	< 1 year: n = 4; 12,9% > 1 year: n = 27; 87,1%	Beginners ¹ : n = 21; 67,7% Advanced ² : n = 10; 32,3%	Lightweight ³ : n = 9; 29% Middleweight ⁴ : n = 13; 42% Heavyweight ⁵ : n = 9; 29%
Não-competidores (n= 16)	35,5 ± 5,5*	82.6 ± 16.3	< 1 year: n = 3; 18,7% > 1 year: n = 13; 81.3%	Beginners ¹ : n = 10; 62,5% Advanced ² : n = 6; 37,5%	Lightweight ³ : n = 7; 43,7% Middleweight ⁴ : n = 5; 31,3% Heavyweight ⁵ : n = 4; 25%

Note: * $p = 0.009$; [&]Mean ± standard deviation; [#]Frequency; percentage; ¹Beginners: white and blue belts; ²Advanced: purple, brown and black belts; ³ Lightweight: Rooster (< 57.5 kg), Super Feather (< 64 kg), Feather (< 70 kg) and Light (< 76 kg) weight divisions; ⁴ Middleweight: Middle (< 82.3 kg) and Medium Heavy (< 88.3 kg) weight divisions; ⁵Heavyweight: Heavy (< 94.3 kg), Super heavy (< 100.5 kg) and Ultra Heavy (> 100.5 kg) weight divisions.

Figure 1 shows the indices of the 5 motivational dimensions to start practicing BJJ, according to the responses of participants in this study to the EMI-2 questionnaire. The motivational dimensions that had the greatest influence on starting to practice BJJ were Psychological (index = 4) and Physical Condition (index = 3.5) reasons, followed by Interpersonal (index = 2.7), Health and Aesthetics reasons (index = 2.6 for both reasons).

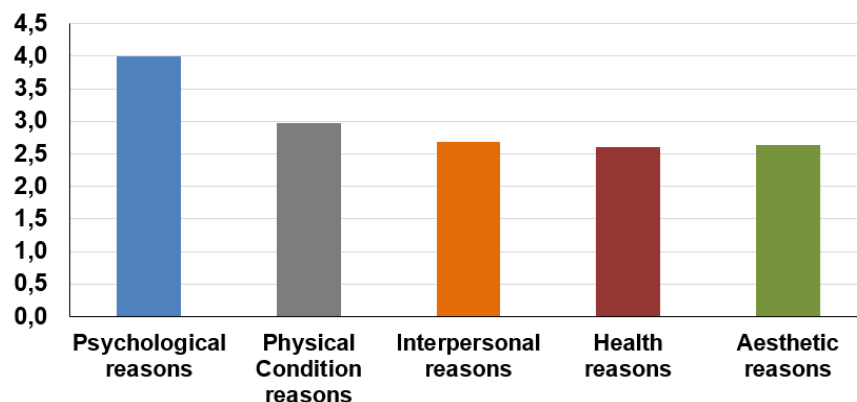


Figure 1. Reasons for starting to practice Brazilian Jiu-jitsu.

Figure 2 shows the percentage contribution of the subgroups to the index of each motivational dimension analyzed in the data. For Psychological reasons (Figure 2A) the distribution of the influence of the search for Fun/Well-Being (52.5%) and Stress Control (47.5%) was balanced. In Interpersonal Motives (Figure 2B), the feeling of Affiliation (belonging to something) was the one that had the greatest influence (43.2%), followed by Competition (35.8%) and Social Recognition (21%). In Health reasons (Figure 2C), the Disease Prevention factor (62.2%) showed a greater contribution to the calculation of the index, while Health Rehabilitation contributed with 37.8%. In Aesthetic reasons (Figure 2D) there was a balanced distribution between the factors of Body Weight Control (52.4%) and Physical Appearance (47.6%).

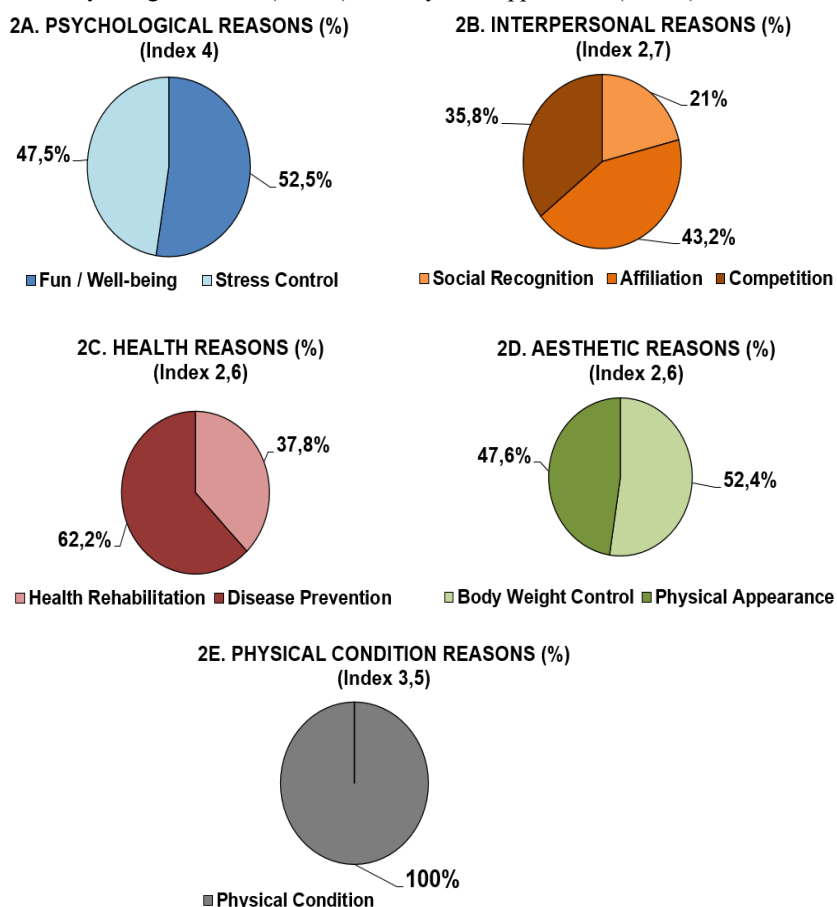


Figure 2. Percentage contribution of subgroups of motivational dimensions to start practicing Brazilian Jiu-jitsu (n = 47).

Note: The Physical Condition reasons dimension does not have a subgroup.

Figure 3 shows the relationship between competitive practice and motivational factors to start practicing BJJ. Among the practitioners who competed, the motivational dimensions that had the greatest influence on starting to practice BJJ were: Psychological reasons (index = 3.8) and Physical Condition (index = 3), followed by Interpersonal reasons (index = 2.9), Aesthetics (index = 2.7) and Health (index = 2.4). Among BJJ practitioners who did not compete, the order of reasons was: Psychological (index = 4.4), Physical Condition (index = 3), Health (index = 2.9), Aesthetics (index = 2.4), and Interpersonal (index = 2.3).

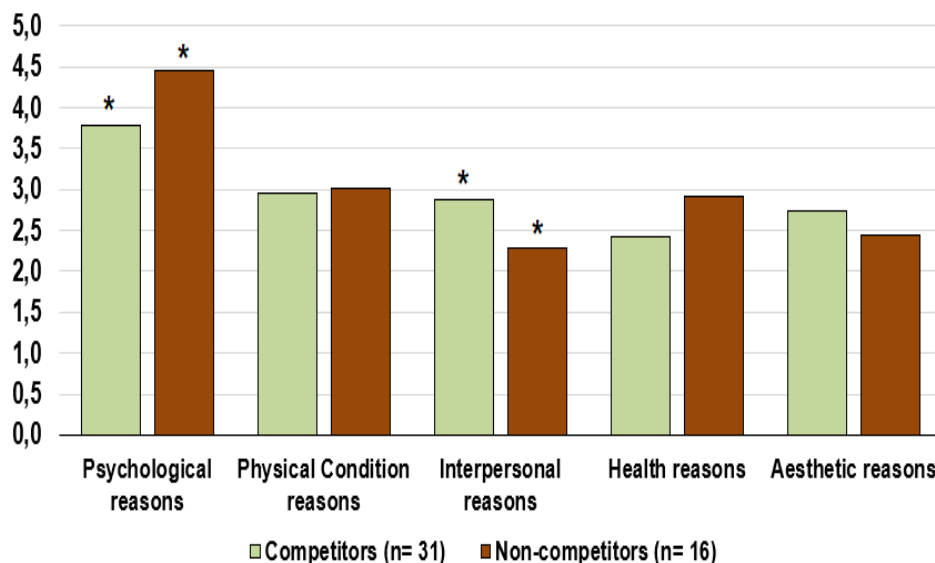


Figure 3. Relationship between competitive practice and motivational factors to start practicing Brazilian Jiu-jitsu.

Note: * significant difference ($p < 0.05$)

A comparison between the groups revealed a significant difference in the influence rates attributed to Psychological and Interpersonal reasons. Non-competitors reported a higher rate of influence from psychological reasons to start practicing BJJ [Non-competitors = 4.4 ± 0.6 ; Competitors = 3.8 ± 1.1 ; $t(45) = 2.715$; $p = 0.009$; $r = 0.33$], whereas for competitors, Interpersonal motives held a higher value [Competitors = 2.9 ± 0.98 ; non-competitors = 2.3 ± 0.73 ; $t(45) = -2.14$; $p = 0.038$; $r = 0.3$] (Figure 3). Figure 4 provides an overview of the influence of subgroups within each dimension for competitors and non-competitors.

In Figure 4A (Psychological reasons), the distribution of Fun/Well-Being and Stress Control factors was balanced for both groups. However, there was a significant difference in the Stress Control indices, with non-competitors reporting a higher value [non-competitors = 4.4 ± 0.7 ; Competitors = 3.5 ± 1.6 ; $t(45) = -2.574$; $p = 0.013$; $r = 0.3$].

Figure 4B (Interpersonal reasons) highlights that for competitors, the most influential factors were the feeling of Affiliation and Competition (38.6% for both factors), while for non-competitors, Affiliation (55.5%) had a greater influence. Significant differences were observed between the groups for the indices of the Competition and Social Recognition factors, with competitors reporting higher values [Competition: Competitors = 3.3 ± 1.3 ; non-competitors = 2 ± 1.2 ; $t(45) = 3.41$; $p = 0.001$; $r = 0.45$; Social Recognition: Competitors = 2 ± 1.4 ; non-competitors = 1.1 ± 1.1 ; $t(45) = 2.155$; $p = 0.037$; $r = 0.31$].

Figure 4C (Health reasons) demonstrates that for both competitors and non-competitors, the factor of Disease Prevention held the greatest influence (Competitors = 63.1%; index = 3.1; non-competitors = 60.8%; index = 3.6). Similarly, Figure 4D (Aesthetic reasons) shows a balanced distribution between the factors of Body Weight Control and Physical Appearance for both groups. Figure 4E (Fitness reasons) does not contain any subgroups.

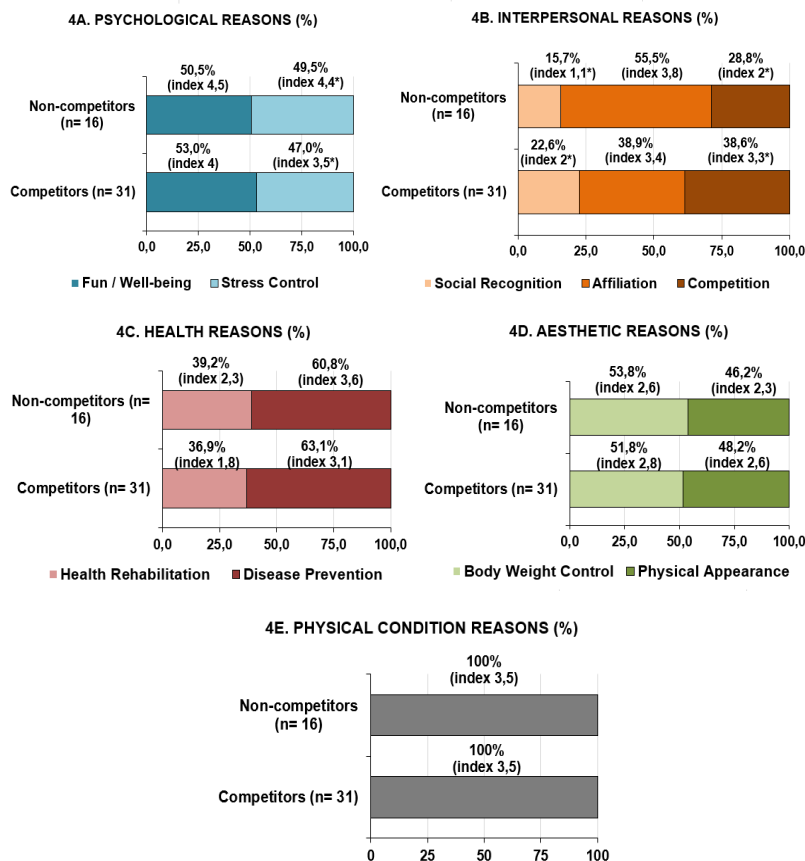


Figure 4. Relationship between competitive practice and motivational factors to start practicing Brazilian Jiu-jitsu among competitors and non-competitors.

Note: The Physical Condition reasons does not have subgroups; *Significant difference - Psychological Reasons: $p= 0.009$; Interpersonal Reasons: $p= 0.038$; Stress Control: $p= 0.013$; Social Recognition: $p= 0.037$; Competition: $p= 0.001$.

Discussion

This study evaluated what reasons lead individuals to practice BJJ, comparing competitors with non-competitors. The main finding of the present study demonstrated that the main motivational values for the practice of BJJ are determined by the Psychological and Physical Condition dimensions, followed by Interpersonal, Health, and Aesthetic reasons (Figure 1). When comparing the groups of competitors and non-competitors, despite the Psychological and Physical Condition dimensions remaining the most relevant, there are differences in the order of influence of the other motivational dimensions and the factors attributed to each dimension (Figure 3).

There is not a single reason that led the individual to practice a martial art, but rather a series of interconnected factors that contribute to adherence to the sport (Aires et al., 2020). For an individual to feel good and have a better quality of life, it is necessary to consider psychological, physical, and social parameters in sports practice. The promotion of health, pleasure, stress control, competitiveness, aesthetics, and sociability are the purposes that stand out when investigating the motivations for the amateur practice of BJJ (Aires et al., 2020). In the study by Kistorz & Sas-Nowosielski (2021), it was noticed that martial arts athletes value autonomous motivation more than combat, which allows these athletes to have greater control of aggressiveness and ethical sensitivity. When investigating the reasons for participation in judo by young Brazilians of both sexes, Guedes & Missaka (2015) highlighted self-realization, mastery, and/or improvement of sports skills, physical conditioning, and competition as the most prevalent reasons.

In a recent systematic review that investigated various psychological parameters and their influence on the performance of judo practitioners, there was a discussion about the importance of these parameters, especially mood, anxiety, motivation, and mental resistance, in the performance of athletes. The authors highlighted the importance of motivation, showing that athletes with a high level of motivation have greater mental efficiency and lower impulsiveness than those who are less motivated (Rossi et al., 2022).

Keller et al. (2007), in a study carried out with 25 BJJ practitioners, identified that the intrinsic motivation presented by the athletes was considered moderate, which may be due to the methodology applied by the instructor. In this same study, a high percentage of athletes who did not intend to become professional athletes in the future was identified, which could be justified by the stereotype of the fighter who presents a particular identity in society.

Andrade et al. (2014) evaluated 11 BJJ practitioners who had a high level of self-determination, and they found that the most external motivational regulations had low results, contrasting with the most internal ones, which were higher. Thus, it is hypothesized that the characteristics of BJJ fighting may exert some influence on the reasons that lead practitioners of this modality to seek this practice of physical exercise.

Considering that Martial Arts promote the individual's search for overcoming, both individually and in relation to others, and facing challenges, BJJ can be an auxiliary means to face psychological difficulties. Therefore, as care for well-being and valuing the quality of life has become common nowadays, this would explain why the psychological dimension is the greatest motivator to start practicing BJJ (Figures 1 and 2).

In an older study by Silva & Tahara (2003), conducted with 17 BJJ practitioners, they indicated that dynamism and pleasure in practicing martial art are the main factors for adherence to sports practice. According to the Theory of Self-Determination, presented by Deci & Ryan (2000), pleasure is one of the main agents of intrinsic motivation, which is a positive indicator for the practice of BJJ.

Furthermore, Silva & Tahara (2003) observed that the main physical and psychological changes brought about by the practice of BJJ were the relief of stress levels and the improvement of physical conditioning. Well-being and health result from the intimate relationship with the improvement of physical condition and the formation of a healthy mind. In BJJ, the motto "healthy body and healthy mind" is valued and worked on in the day-to-day training on the mat, through the typical philosophical thinking of fights of oriental origin (Deci & Ryan, 2000).

In the analysis of groups that competed or not, it was found that the Stress Control factor had a higher index for non-competitors than for competitors (Figure 4). According to Pacheco (2009), the Stress Control factor is well related to adults, considering that this group has more commitments and responsibilities than younger people. Saldanha (2008) also states that high values for Stress Control are more present in the adult population, thus configuring that physical exercise is an important tool to relieve stress. The participants of this study differed in terms of age when they were divided into competitive and non-competitive groups (Table 1), although both groups were composed of adults (≥ 18 years old). As the non-competitors were older, perhaps this would explain why the Stress Management factor was more relevant for this group.

Through the practice of BJJ, the individual performs combats during class and therefore needs to focus his mind and his actions only on the fight, preventing other concerns external to the mat from disturbing him. This fact can provide the fighter with distance from stressful situations and channel day-to-day tensions into combat, allowing the BJJ practitioner to deal with daily problems in a pleasant way. Rosa & Peixoto (2018) found that regular BJJ practitioners had lower levels of perceived stress when compared to irregularly active individuals.

The second biggest motivator for practicing BJJ in the results of this study was the Physical Condition dimension (Figures 1 and 3). In fact, it has been shown that Physical Fitness and Independence are dominant components of motivation in BJJ athletes (Wolska et al., 2019). Well-guided and monitored physical exercises make it possible to live and age better, in a healthier way. BJJ training usually lasts between 60 to 90 minutes, 2 to 3 times a week. Combat involves peaks in high-intensity actions interspaced by low-intensity actions, requiring high demand on the neuromuscular and cardiorespiratory components (Andreato et al., 2016). Therefore, the training must emphasize these characteristics, which allows the practitioner to develop important physical capacities for the maintenance of physical fitness. Therefore, it is not surprising that the Physical Condition dimension is a motivating factor for the practice of BJJ.

BJJ is a sport modality of individual combat, with constant interactions between opponents, so it is characterized as a sport that requires technical, tactical, physical, and psychological skills (Ruiz-Barquín, 2012). The objective is to force the opponent to give up through throws, immobilizations, imbalances, strangulations, and keys applied to the joints (Brandt et al., 2015).

Interpersonal motives for practicing BJJ are the third dimension to influence the beginning of BJJ practice (Figure 1). However, this dimension was more relevant for competitors than for non-competitors (Figure 3), and the factors of Competition and Social Recognition differed between groups divided by participation in the competition (Figure 4). It is expected that fighters who compete have competitive experience and recognition of their results as motivation to practice sports.

Souza et al. (2010) conducted a study with 12 BJJ practitioners and observed that more than half of the fighters had a better post-competition self-esteem level than the pre-competition self-esteem level. Therefore, the authors found that competitions are a positive motivational factor that may be responsible for increasing the self-esteem levels of the fighters.

In contrast, Affiliation was a relevant factor of Interpersonal motives for both competitors and non-competitors, with this factor being more relevant for non-competitors (Figure 4). Older studies, such as de Amorim et al (2013), show that sociability is of fundamental importance for adherence to physical exercise. Practitioners, when attending the same environment and interacting with each other, end up creating social bonds. Thus, the data from this study support the idea that it is important for the BJJ practitioner to be part of a group, feel like a member of a team, and this is easily observed in the day-to-day sport.

The Health and Aesthetics dimensions had lower influence values for the motivation to practice BJJ (Figures 1 and 3), with Disease Prevention and Weight Control being the most prominent factors in these dimensions, respectively (Figures 2 and 4).

This study had some limitations, mainly since the sample was composed only of male individuals. The literature has shown that in a study with mostly women participating in the sample, the group that included martial arts practitioners indicated the Health and Aesthetics dimensions as determining motivational factors for the practice of fighting modalities (Borges et al., 2021). Guedes & Mota (2016), in a study carried out with university students also from the city of Londrina/PR, observed that women attributed a significantly higher degree of importance to Body Weight Control and Physical Appearance to the practice of physical exercises when compared to men. Therefore, it would be interesting to carry out other studies with women to observe whether the Aesthetic reasons for practicing BJJ would also be less relevant. In addition, the inclusion of other age groups in the sample and stratification with a greater number of subjects per group would also be interesting to assess the motivation for practicing BJJ in adolescents and elderly people and to understand how competitive practice is in these age ranges.

Conclusions

The motivation to practice BJJ is not limited to a single dimension but encompasses a range of factors, with the Psychological, Physical Condition, and Interpersonal domains being the primary ones. The motivational factors within the Psychological and Interpersonal dimensions exhibit differences between competitors and non-competitors, with Stress Management holding greater importance for non-competitors, while Competition and Social Recognition are more significant for competitors. The Health and Aesthetic dimensions, although not as influential in initiating BJJ practice within the studied sample, may require further investigation to determine if similar results emerge among women.

Given the scarcity of studies exploring the reasons behind adopting BJJ practice, this research holds significance. Numerous factors contribute to adherence and commitment to sports practice, underscoring the importance of considering the findings from this study when prescribing training programs aimed at motivating continued engagement in BJJ. This information can aid BJJ teachers and masters in enhancing the quality of their classes and the training of their students by gaining a better understanding of student profiles and their interests.

Conflicts of interest

The authors declare no conflict of interest.

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