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Original Article

MOOD STATE, MOTIVATION AND IMPULSIVENESS AMONG STUDENTS PARTICIPATING IN YOUTH SCHOOL GAMES

ESTADO DE HUMOR, MOTIVAÇÃO E IMPULSIVIDADE DE ESTUDANTES PARTICIPANTES DOS JOGOS ESCOLARES DA JUVENTUDE

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RESUMO

O objetivo do presente estudo foi descrever o estado de humor, motivação e impulsividade dos estudantes participantes dos Jogos Escolares da Juventude e comparar estas variáveis entre os sexos. A pesquisa teve caráter transversal e a amostra foi composta por 147 escolares de 12 a 17 anos (14,53±1,51 anos; 51,70% participantes do sexo masculino). As seguintes escalas foram utilizadas: 1) Brunel Mood Scale; 2) Motivação para Atividade Física Medida Revisada e 3) Escala de Comportamento Impulsivo. Para a comparação entre os grupos, utilizou-se o teste de U de Mann-Whitney e calculou-se o tamanho do efeito por meio do d de Cohen. Os resultados mostraram que escolares do sexo feminino apresentaram maiores escores de ansiedade, raiva, confusão, depressão, fadiga, falta de perseverança e premeditação. Por outro lado, escolares do sexo masculino apresentaram maiores escores na aparência e saúde, mostrando-se mais motivados por fatores extrínsecos, em relação ao sexo feminino. Portanto, sugere-se que as estratégias de treinamento sejam adaptadas conforme o sexo, tendo em vista as respectivas características.

Palavras-chave: Esporte. Competição. Educação Física. Aspectos Psicológicos.

ABSTRACT

The objective of the present study was to describe the mood state, motivation and impulsiveness of students participating in youth school games and to compare these variables between sexes. The research was cross-sectional, and the sample was composed of 147 students aged 12 to 17 years old (14.53±1.51 years; 51.70% of male participants). The following scales were used: 1) Brunel Mood Scale; 2) Motives for Physical Activity Measure – Revised, and 3) Impulsive Behavior Scale. For comparison between groups, the Mann-Whitney U test was used, and the effect size was calculated by means of Cohen's d. The results showed that female students presented higher scores for anxiety, anger, confusion, depression, fatigue, lack of perseverance and premeditation. On the other hand, male students presented higher scores for appearance and health, seeming to be more motivated by extrinsic factors compared to females. Therefore, it is suggested that training strategies should be adapted by sex, in view of the respective characteristics.

Keywords: Sports. Competition. Physical Education. Psychological Aspects.

Introduction

Sports, as a social phenomenon, enable the transmission of values such as cooperation, self-esteem, emotional regulation, problem solving, among others[1], with competition being an integral part of them[2-4]. In this sphere, the school context presents itself as a field of significant experiences for the formation of youths through sports[4], either by means of curricular physical education classes or student sports competitions.

Considering school competitive sports, it is possible to observe that the students participating in these competitions must solve the problems imposed by situational demand, with this being an excellence training medium for sports and through sports[4], configuring an increased sporting demand in relation to peers who do not participate in this competitive context[5,6]. Based on that, it is known that psychological factors such as mood, motivation and impulsiveness can also influence sports performance in this context[7,8]. Indeed, research in this field has shown that mood instability in school athletes reflects the difficulty they have in dealing with psychological concerns arising from the emotional pressures that occur in the

competitive sports context[9,10]. In addition, sex-related psychological variables are also observed, with females tending to be more impulsive than males[11] and presenting higher scores for depression and anxiety compared to males[12]. Moreover, females are motivated to engage in physical activity and sports by factors related to appearance and physical condition/health in comparison with males[13], that is, by extrinsic factors.

An individual's behavioral profile is a study object that has been growing in interest in recent years, and the analysis of psychological processes during competition has revealed differences between the sexes regarding the behavior of athletes, since emotional self-control and mental health are closely linked to the pathways of access to learning and maturation of these individuals, which happens in different moments and in different ways for females and males in this period known as puberty[14].

In this context, teachers and coaches should consider the factors that affect performance[13-15], and the analysis of intervening factors should be done on the basis of sex. Thus, in view of the scarce literature on school athletes, as well as the importance of psychological variables for sports performance in the school context, the objective of the present study was to compare mood state, motivation and impulsiveness among schoolchildren participating in youth school games, by sex.

The way an athlete deals with their emotions and expresses them can contribute positively or negatively, not only when it comes to their image, and can also impact their performance. Therefore, research shows that these expressions happen more intensely in girls during adolescence, as this phase is marked by several morphological changes in the human body; in females, this process of maturational transformation starts earlier[14], which can make it harder to regulate mood states, motivation and impulsiveness in them. Therefore, the hypothesis is that male athletes do not show differences in mood state, and are more intrinsically motivated and less impulsive compared to female ones.

Methods

Approach

The research had a cross-sectional design. The subjects were analyzed during the regional phase of the 2018 Youth School Games held in the city of Joinville, Santa Catarina, Brazil. It had a quantitative, descriptive and comparative approach that aimed to record, analyze and describe the participants' characteristics as to mood, motivation and impulsiveness in a competitive environment.

The heads of the delegation and/or coaches responsible for the students under the age of 18, objects of the investigation, as well as each student participating in the research, signed the Free and Informed Consent Form and the Free and Informed Assent Form, respectively. After accepting to participate in the research, the students were asked to fill out the collection instruments. The research project to which this study refers was approved by the Federal University of Goiás's Ethics Committee, under legal opinion No 2.667.526.

Participants

The sample of the present study, by convenience, was composed of 147 student athletes from 12 to 17 years old (14.53±1.51 years; 51.70% males), with no difference in the average age by sex; they played different team sports in the regional phase of the 2018 Youth School Games held in Joinville. The students were randomly approached without previous determination for age and sex, with the following numbers of participants by sport: basketball (14 females and 22 males), indoor football (15 females and 15 males), handball (26 females and 26 males) and volleyball (16 females and 13 males).

Experimental procedures

The characteristics of the participating students' profile were assessed through an analysis of three psychometric parameters: mood, motivation and impulsiveness.

The parameters related to their mood states were analyzed by means of the instrument called "Brunel Mood Scale" – BRUMS. This instrument contains 24 items that identify sensations of indisposition or disposition, nervousness or non-nervousness, satisfaction or dissatisfaction, and that can be perceived in the individual when they are subjected to the assessment[16-18]. The BRUMS, an adapted version of another instrument, the Profile of Mood States (POMS) and translated into Portuguese by Rohlfs[19], has a reliability coefficient of 0.76 to 0.90. The scale consists of 6 subscales, 5 of which are related to negative factors: a) tension – it refers to the assessed subject's muscle tension; b) depression – it indicates a feeling of incapacity and a depressed mood state; c) anger – it reflects a climate of irritation and hostility towards others; d) fatigue – it indicates a low level of energy and disposition; e) mental confusion – it is characterized by a confused mood state and a lack of mental clarity; and a positive-factor variable: f) vigor – marked by a high level of energy and disposition[17,19].

The instrument to assess the reasons that lead one to engage in physical activity and sports was the scale entitled Motives for Physical Activity Measure – Revised (MPAM-R), which was validated for Portuguese by Albuquerque et al.[20] The analysis of psychometric properties showed values for Cronbach's alpha, a coefficient that allows the reliability of the internal consistency of the instrument to be analyzed, greater than 0.70, as well as satisfactory values in the exploratory factor analysis for model validation (CFI = 0.98; TLI = 0.96; RMSEA = 0.056 and; $\chi 2$ = 567.813 and df = 295; $p<0.001$), with six items being removed from the original scale[20]. Additionally, the weighted method was used to calculate the final score, through the calculation of the factorial loads, with the following scores being obtained per dimension:

Fun - [(Q1* 0.18) + (Q6* 0.18) + (Q9* 0.12) + (Q15* 0.06) + (Q19* 0.16) + (Q22* 0.12) + (Q25* 0.18)]
Competence - [(Q2* 0.26) + (Q3* 0.14) + (Q7* 0.30) + (Q11* 0.30)]
Appearance - [(Q4* 0.13) + (Q8* 0.19) + (Q14* 0.21) + (Q17* 0.19) + (Q21* 0.13) + (Q23* 0.15)]
Health - [(Q10* 0.18) + (Q13* 0.27) + (Q16* 0.27) + (Q20* 0.28)]
Social - [(Q5* 0.19) + (Q12* 0.20) + (Q18* 0.22) + (Q24* 0.16) + (Q26* 0.23)]

The subjects' impulsiveness was assessed with the translated and adapted version of the Impulsive Behavior Scale **Urgency, Premeditation (lack of), Perseverance (lack of), Sensation Seeking, Positive Urgency, Impulsive Behavior Scale** – **UPPS** (*Escala de Comportamento Impulsivo*, in Brazilian Portuguese (REF)). The instrument consists of 45 items assessing 4 factors related to impulsiveness, namely: urgency, premeditation, lack of perseverance and sensation seeking[21]. The factor called urgency represents an inclination to act impulsively in the presence of negative emotions. Premeditation is characterized by the ability to think about the consequences of a decision. The third factor concerns the pursuit of sensations, which is an individual's tendency to engage in exciting activities. The last factor is lack of perseverance, which is characterized by a difficulty in staying focused on a given task[10,22].

Statistical analysis

The data were analyzed descriptively through mean and standard deviation calculation. The Mann-Whitney U test was used to compare the groups, since the data distribution did not meet the normality assumptions. The effect size was calculated as well through Cohen's d. To interpret the effect sizes, the following references were used: <0.19 – insignificant, 0.20-0.49 – small, 0.50-0.79 – medium, 0.80-1.29 – large, > 1.30 – very large[23]. For data treatment, a

significance value of 5% ($p \leq 0.05$) was adopted, and the SPSS software, version 20.0 (IBM, USA), was used.

Results

The Mann-Whitney U test showed differences between sexes for the mood scale in the following categories: depression (U=2079.00; $p<0.05$; d=0.89), tension (U=2089.50; $p<0.05$; d=0.39), fatigue (U=2074.00; $p<0.05$; d=0.28), anger (U=1977.50; $p<0.05$; d=0.50), and confusion (U=2031.50; $p<0.05$; d=1.00). Considering the reasons for doing sports, difference was found between sexes in the following categories: appearance (U=2134.00; $p<0.05$; d=0.22) and health (U=1948.50; $p<0.05$; d=0.41). The analysis of impulsiveness showed difference between sexes in the following categories: perseverance (U=1745.50; $p<0.001$; d=0.66) and premeditation (U=1814.00; $p<0.05$; d=0.46).

Table 1. Comparison of mood, motivation and impulsiveness of the analyzed categories

Independent variables		Sex	Mean	Standard deviation	*p*	*d*
Mood scale	Depression	Female	2.03	3.33	0.010*	0.89
		Male	0.78	1.52		
	Tension	Female	4.61	3.30	0.025*	0.39
		Male	3.38	2.59		
	Fatigue	Female	3.91	4.03	0.020*	0.28
		Male	2.50	3.00		
	Anger	Female	1.69	2.79	0.002*	0.50
		Male	0.88	2.18		
	Vigor	Female	7.31	3.99	0.073	0.33
		Male	8.47	3.94		
	Confusion	Female	1.53	1.95	0.006*	1.00
		Male	0.87	1.65		
Motives for practice	Fun	Female	5.76	0.87	0.176	0.09
		Male	5.83	1.24		
	Competence	Female	6.27	0.74	0.775	0.19
		Male	6.07	1.24		
	Appearance	Female	5.36	1.02	0.039*	0.22
		Male	5.61	1.27		
	Health	Female	4.45	1.37	0.005*	0.41
		Male	5.03	1.44		
	Social	Female	5.67	0.95	0.942	0.09
		Male	5.56	1.26		
Impulsiveness	Lack of perseverance	Female	20.89	5.70	0.0001*	0.66
		Male	17.75	4.70		
	Urgency	Female	24.03	7.64	0.444	0.22
		Male	26.55	11.28		
	Lack of premeditation	Female	22.74	7.46	0.001*	0.46
		Male	19.09	6.57		
	Sensation seeking	Female	28.74	9.40	0.311	0.21
		Male	30.61	10.91		

Source: The authors
Note: *Difference for $p<0.05$

Discussion

The objective of the present study was to compare mood state, motivation and impulsiveness among schoolchildren participating in youth school games. The results concerning mood state did not confirm the hypothesis; females presented higher values for the

depression, tension, fatigue, anger and confusion subscales than males did, with the effect size ranging from small to large. These findings are aligned with the literature, which shows that female subjects are more likely to present greater anxiety, symptoms of depression, tension, fatigue and confusion than males are, thus generating a lower level of self-confidence[9,12,24,25]. On the other hand, the results do not corroborate with the study by Brant[24], which found a higher level of anger in males than in females. Gyomber[9] studied young athletes' mood states related to sports performance and found differences between sexes, with males better assessing their well-being during the exercise and their sports performance compared to females, in addition to showing a greater capacity for self-examination and self-reflection, being able to achieve a more successful sports performance even under pressure. On the other hand, females presented greater attention to factors of interest and motivation, in addition to a greater tendency to experience somatic anxiety, showing a lower self-confidence compared to that of males[9]. A study involving Chinese schoolchildren of both sexes[14] related mood to high-intensity training and found a positive relationship between both, which means that high-intensity training can improve the mood of schoolchildren. However, the author did not compare mood states between sexes, but points out that, for young athletes, of both sexes, environmental factors can easily affect their mood state, due to immaturity and lack of social experience. In this context, these findings show that the choice of the sample size can explain the differences found, since high-level school athletes were analyzed, suggesting that the training process towards reaching such a competitive level causes them to show high vigor. However, there were differences in the negative aspects related to mood, comparing the sexes, suggesting that females were more susceptible to the pressures arising from the sports context, although this is not influenced by age, as reported by Verardi et al.[26]

Considering the motives that lead students to do sports, the hypothesis was not confirmed, since males were more motivated by aspects related to appearance and health in relation to the females, that is, they were more motivated by extrinsic aspects. These results partially agree with Zeng[27], who studied motivational aspects for engagement in physical activity with 85 student athletes of taekwondo aged between 10 and 20 years old, and found that males are more motivated by aspects related to appearance, health, competence and socialization. According to Caetano and Januário[28], motivation may vary by sex, and male students report a higher perception of competence in relation to female ones. According to the authors, these differences can be explained by the gender stereotype, which values physical capacity as strength in men, and expressive capacity in women[28]. In addition, the difference between genders, to some extent, represents social and cultural stereotypes that, for the most part, suggest that men need to assert their superiority over their competitors and achieve success in sports, while women avoid participating in competitive sports and choose to play for reasons concerning socialization or aesthetic aspects[29]. In general, studies conducted with schoolchildren do not distinguish between genders, but suggest that school athletes are more intrinsically motivated. In this context, intrinsic motivation refers to factors related to the individual's autonomy in making their own choices depending on interest, pleasure and satisfaction, based on aspects related to fun and competence in sports practice[3,30]. Male athletes engage in competitive sports because they wish to have greater sporting success in training sessions and competitions compared to female athletes[31]. From this perspective, the results showed no differences in aspects concerning intrinsic motivation on the basis of sex, but in those concerning extrinsic motivation, which suggests that, in a general analysis, male athletes were more motivated, a fact that can be explained by cultural and social factors being materialized in sporting success, either in a training or competition environment.

Analyzing the students' impulsiveness, the hypothesis was confirmed, with females showing a greater lack of perseverance and lack of premeditation than males, which indicates that female students are less focused on tasks during the competitive period and tended to think

less about the consequence of a decision, thus showing a greater level of impulsiveness than that of males. These results agree with the studies by Šimiæ and Mesiæ[7], but disagree with other investigations[32,33] that report significant differences between sexes and that, unlike the finding of this research, indicate that males present higher levels of impulsiveness than females do. Cyders[33] found that males have higher levels of urgency, sensation seeking and behavioral risk taking compared to females, a fact not observed in the present study. In a study conducted by Kotbagi et al.[34], differences were found between sexes again, with males also showing that their impulsive behavior is more related to a pursuit of sensations. Broadly speaking, the literature shows that the level of impulsiveness of young athletes may vary according to age, sex and performance, with distress deriving from experiences under psychological pressure and increased physical demand affecting the athlete's impulsive behavior[35,36]. Thus, it is possible to notice that athletes build different resources to deal with impulsiveness, based on the needs of each sport modality[37]. Furthermore, by means of their training, they need to learn how to deal with impulsiveness, which will then allow them to focus on the goals emerging from the sports context, avoid distracting information, have a quicker cognitive processing and flexibility, greater capacity for cognitive control aimed at response planning, as well as to think before they act, all of which will thus associate with better autonomy, a fact that helps in the optimal sports performance of athletes[38].

Conclusions

From the findings, it was possible to observe that mood, motivation and impulsiveness change on the basis of sex. Thus, female students showed higher levels of impulsiveness, anger, confusion, depression and fatigue. On the other hand, male participants were more motivated by extrinsic factors compared to female ones, suggesting that, in a competitive environment, schoolchildren are concerned with competition and satisfaction in winning, with rewards and recognition. These results probably reinforce cultural and social factors imposed by the Brazilian society, since men must be more competitive than women and must assert themselves, in sports, by resorting to this type of behavior. This way, teachers must better identify and understand the behavioral profile of male and female students participating in sports championships, analyzing how the pressures that arise in the sports medium, whether in training sessions or in competitions, affect each athlete, helping these individuals develop self-control, and being better guided as to their teaching actions and the planning of classes and training sessions.

In this context, training strategies should be adapted in accordance with sex, in order to contribute to the student athlete's formation process, and further studies should identify possible differences related to the type of sport played, as well as the athlete's experience and age. However, this study presents as a limitation the fact that it does not analyze how such factors change depending on the type of sport played, nor did it consider the final position of the teams in the competition, which would allow stratification in the analysis of the results. Another limitation was that it did not analyze the influence of the result in the previous match during data collection, nor the expectation of success prior to the match, since they directly influence the psychometric variables[38,39]. Bearing this in mind, in view of such limitations, further studies should analyze such psychometric parameters by age, sport played, match results, the athlete's prospect of success in the competition, and sports performance by sex or, considering the social construction of the human being, by gender.

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