
COMPARISON OF THE MOTIVATION LEVEL OF SOCCER PLAYERS WITH HIGH AND LOW PLAYED TIME IN MATCHES UNDER-20**COMPARAÇÃO DO NÍVEL DE MOTIVAÇÃO DE ATLETAS DE FUTEBOL COM ALTO E BAIXO TEMPO JOGADO NAS PARTIDAS DA CATEGORIA SUB-20****Maurício José de Souza Filho¹, Maicon Rodrigues Albuquerque¹, Israel Teoldo da Costa², Leandro Fernandes Malloy-Diniz¹ and Varley Teoldo da Costa¹**¹Universidade Federal de Minas Gerais, Belo Horizonte-MG, Brasil.²Universidade Federal de Viçosa, Viçosa-MG, Brasil.

ABSTRACT

An athlete's motivation is deemed one of the most important elements to achieve success in sports career. The aim of this study was to compare the motivation level of football athletes with long playtime (LPT) and short playtime (SPT) in a competition. The study assessed 112 federated athletes (18.58±1.06 years old) participating in Minas Gerais's Under-20 Football Championship (2015), by means of the Sport Motivation Scale (SMS). The athletes' playtime (PT) in the championship's qualifying rounds was registered through the analysis of 48 official referee report forms. The athletes were grouped according to their PT – SPT ≤25% (≤184 minutes) and LPT ≥75% (≥513 minutes). Results showed that those with LPT presented higher levels of self-determination and higher scores of intrinsic motivation compared to SPT athletes ($p<0.05$), and SPT athletes seemed less motivated in said competition ($p<0.05$). In conclusion, LPT athletes in official matches scored higher in self-determination and intrinsic motivation levels. On the other hand, those with SPT in official games showed higher demotivation compared to the former.

Keywords: Motivation. Football. Athletes.

RESUMO

A motivação do atleta é considerada um dos elementos mais importantes para obter sucesso na carreira esportiva. O objetivo deste estudo foi comparar o nível de motivação de atletas de futebol com alto tempo jogado (ATJ) e baixo tempo jogado (BTJ) em uma competição. Foram avaliados 112 atletas federados (18,58±1,06 anos de idade) participantes do Campeonato Mineiro de futebol sub-20 (2015). Foi utilizada a Escala de Motivação no Esporte (SMS). O tempo jogado (TJ) pelos atletas na fase classificatória do campeonato foi registrado por meio da análise das 48 súmulas oficiais. Os atletas foram agrupados de acordo com o TJ, sendo BTJ ≤25% (≤184 minutos) e ATJ ≥75% (≥513 minutos). Os resultados evidenciaram que os atletas com ATJ apresentaram maiores índices de autodeterminação e maiores níveis de motivação intrínseca, em comparação aos atletas com BTJ ($p<0,05$), bem como atletas com BTJ se mostraram mais desmotivados nesta competição ($p<0,05$). Conclui-se que os atletas com ATJ em partidas oficiais apresentam maiores índices de autodeterminação e maiores níveis de motivação intrínseca. Por outro lado, atletas com BTJ em partidas oficiais apresentam uma desmotivação maior quando comparados com os atletas com ATJ.

Palavras-chave: Motivação. Futebol. Atletas.

Introduction

An athlete's motivation is deemed one of the most important elements for success in sports career¹. In football, studies have sought to identify what factors relate to the construction of a motivational environment, aiming at increasing his or her performance². An athlete has reasons of intrinsic and extrinsic nature, but may also present during a season demotivational factors caused, for instance, by being little explored by coaches in matches. However, it is not yet known if the playtime (PT) of U-20 football athletes can affect their levels of motivation and, consequently, their sport performance.

The Under-20 category is perceived as a turning point for the sport career of young athletes in the transition or no transition to the adult category of professional football. A

successful transition occurs when the athlete is able to effectively develop and utilize resources and coping strategies needed to overcome barriers encountered in the professionalization process⁴. Thus, in the U-20 category, athletes must show to coaches and managers that they are able to ascend to the main team and become a professional athlete⁵. This search for professionalism causes an increase in the race for first-teamer positions and, consequently, in the fight to stay for a longer time on the pitch during the official matches of the category. The first-teamer status in matches, in turn, directly reflects the athlete's permanence on the pitch during official matches and, therefore, it is worth investigating whether different PT levels in official matches may interfere with the motivation levels of U-20 football players. In short, does playing longer affect an athletes' motivation levels? The longer football athletes play, the greater their motivation levels? These inquiries still do not present evidence in the literature, especially for the Under-20 category.

It is known that motivation for sports practice depends on the interaction of personal and situational factors⁶. In addition, motivation is considered a key element for permanence in a sport activity⁷⁻¹¹, being determinant to the athlete's conduct, as it triggers and maintains adequate activation levels to regulate performance-oriented behavior^{12,13}. Therefore, it is reasonable to admit that an athlete's ability to remain motivated in football, even in situations of pressure and professional uncertainty, can contribute to him or her achieving professionalism or not.

In an official football match, numerous physical, technical, tactical and psychological variables can be analyzed to define who will be a professional and who will not. Among these variables, the time athletes stay on the pitch offers subsidies for the coaching staff to evaluate them, allowing the latter to identify which of the squad's players actually have conditions to become professional.

Thus, playtime in competition is an important variable in U-20 football, because an athlete with long playtime (LPT) in official matches has the opportunity to show his or her qualities to the coaching staff of this category and to the coaching staff of the main team; by playing, the athlete tends to develop his or her potential, in addition to becoming more economically valuable to the club. On the other hand, an athlete with short playtime (SPT) in official matches ends up having lower chances of development, because during competition he or she gathers less knowledge of "what to do" – tactical component – and "how to do it" – technical component – and, consequently, less experience to solve the tasks/problems of the game¹⁴, in addition to having fewer opportunities during the competition to present his or her qualities as an athlete to become professional. These circumstances raise the question: are LPT athletes in a U-20 competition more motivated than SPT athletes in the competition? In this case, one of the theories that can contribute to the understanding of possible differences in the motivation levels of LPT and SPT athletes is the Self-Determination Theory^{3,15,16}, which postulates that an individual's interactions with the environment can affect his or her motivation levels.

The Self-Determination Theory (SDT) has been widely used to understand and explain the sport behavior of athletes¹⁷. According to this theory, a person's behavior is established along a motivational *continuum* differentiated by self-determination levels ranging from the least self-determined to the most self-determined, resulting in three different types of motivation: demotivation, extrinsic motivation and intrinsic motivation^{3,18}. Demotivation consists of a state in which the individual does not intend to act and ends up giving himself or herself in to the process. Extrinsic motivation refers to doing something stimulated by external factors, and intrinsic motivation is related to doing something pleasurable^{3,18}. The sports literature has also suggested the use of the self-determination index (SDI), which consists of a single score obtained by the sum of weighted scores in each dimension that

composes the different types of motivation, indicating the individual's position in a *continuum* of self-determination^{19,20}.

Specifically in football, motivation has been correlated with several psychological constructs such as commitment²¹, mental resistance²², burnout²³, coping^{24,25}, perfectionism²⁶, and with variables of technical and tactical performance^{10,27,28}. However, there is no evidence of studies that have analyzed the influence of PT on the motivation of football athletes and on decisive categories such as the Under-20, which determines who will become a professional athlete or not.

In football, the literature has presented evidence that intrinsic motivation correlates positively with the commitment of young athletes²¹. Other pieces of evidence show that Australian football players with high levels of mental resistance possessed high levels of intrinsic motivation, extrinsic motivation of identified regulation and external regulation²². Another study²³ investigated the relationship between forms of passion and burnout in elite football athletes, verifying a mediating role of self-determined motivation, which proved to be a protective effect to prevent the burnout syndrome. Likewise, intrinsic motivation may favor an athlete's coping strategies, helping him or her to deal with stress in this modality^{24,25}. There have been investigations on the impact of perfectionist traits on the self-determined motivation of professional and junior football athletes, observing that adaptive perfectionism orientations (standards of personal fulfillment and organization) have a positive impact on the intrinsic motivation of professional athletes²⁶. In addition, evidence has suggested a positive correlation between motivation and technical and tactical performance in young athletes^{10,27,28}.

However, despite the results presented, in the field of football, no evidence has been found so far of studies that have investigated to what extent playing more or less in competitions interferes with the motivation levels of Under-20 football athletes. Thus, observing the state of the art regarding the relationship between motivation and opportunity to compete, measured by an athlete's PT, for instance, it is possible to notice that studies still need to advance in the understanding of how PT may interfere with an athlete's motivation. It is believed that athletes with LPT in official matches may feel more motivated to play football compared to teammates with SPT in official matches.

The objective of this study is to compare the motivation level of football athletes with LPT and SPT in a competition.

Methods

Sample and Ethical Concerns

Of the 15 federated teams eligible to participate in Minas Gerais's Under-20 Football Championship (2015), only 06 (40%) accepted to participate in the study. As inclusion criterion, this study assessed all athletes who participated in at least one match in the qualifying rounds of the championship and whose team accepted to participate in the study. The exclusion criteria were: a) team athletes who accepted to participate in the study but refused to undergo the assessments for personal reasons, b) athletes who did not enter the field (zero minute played), and c) other team athletes who did not agree to participate in the research. Thus, 112 male athletes (18.58 ± 1.06 years old) from six teams of Minas Gerais state were assessed.

This study was approved by the Ethics Committee on Research Involving Humans of the Federal University of Minas Gerais (CAAE – 39153614.1.0000.5149). Initially, the heads of the six teams signed a letter authorizing the research. In addition, all participants and their legal guardians signed a Free and Informed Consent Term.

Instruments

A demographic data questionnaire was used to obtain information about the age of the athletes. The other instrument employed was the Brazilian version of the Sport Motivation Scale (SMS), validated specifically in football for the Brazilian Portuguese language²⁹.

The SMS is composed of 28 items distributed into seven dimensions: Demotivation, Extrinsic Motivation (EM) of external regulation, EM of introjected regulation, EM of identified regulation, Intrinsic Motivation (IM) to achieve goals, IM to experience stimulation and IM to know. Each item is answered on a seven-point Likert scale ranging from 1 “Not at all agree” to 7 “Completely agree”.

The internal consistency index (Cronbach’s α) of the SMS for this sample of football players was 0.90, a value considered adequate to ensure the reliability of the instrument³⁰.

The athletes’ self-determined motivation was assessed using the self-determination index (SDI), already used in previous studies on motivation in sports^{19,20}. The SDI may range from -18 (lowest self-determination) to 18 (highest self-determination), corresponding to the athlete’s position in a self-determination *continuum*¹⁹.

Procedures

After the researchers explained the objectives of the study, the athletes answered individually the demographic data and SMS questionnaires. Of the ten rounds that make up the qualifying phase of the championship, the data of the questionnaires were collected between the 5th and 6th round. The reason for collection within this period is because all teams collected in that moment of the competition still had chances of qualifying for the final phase of the championship. The athletes answered the instruments on days and schedules provided by the teams, in a reserved place at their own Training Center. Collection lasted an average of 25 minutes.

Playtime (PT) was collected at the end of the championship’s qualifying phase and extracted from official referee report forms of the 48 matches played. All reports were made available on the website of Minas Gerais’s Football Federation³¹. In the qualifying phase of the championship, each team that accepted to participate in the study played eight matches; the minimum time played by an athlete was 14 minutes, while the maximum time played was 769 minutes.

In order to analyze motivational differences according to PT in the qualifying phase of the championship, the athletes were grouped by short, intermediate and long PT. As a criterion for separating the groups, a procedure similar to that used in a previous study was adopted³². Thus, results of the Athlete’s Playtime variable were divided into quartiles using the extremities ($\leq 25\%$ and $\geq 75\%$) in order to separate two distinct groups. The short playtime group ($n=28$) presented mean PT of 101.71 (± 56.58) minutes, and athletes with PT values $\leq 25\%$ (≤ 184 minutes) in the competition were included. The long playtime group ($n=28$) showed mean PT of 618.89 (± 79.95) minutes, and athletes with PT values $\geq 75\%$ (≥ 513 minutes) in the competition were included. The intermediate group ($>25\%$ and $<75\%$) was used only in the classification of the groups. The effect size ($ES=0.967$) observed by comparing PT between groups (SPT and LPT) was classified as large³³. The mean PT between the LPT and SPT groups in the championship’s qualifying phase is shown in Figure 1.

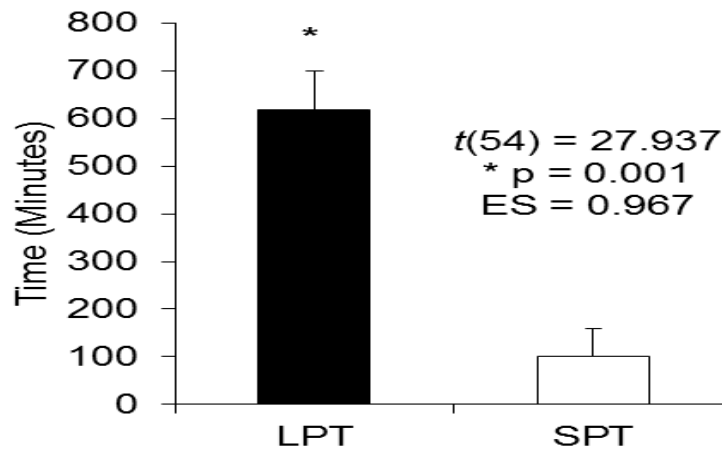


Figure 1. Mean playtime between groups

Legend: LPT = long playtime; SPT = short playtime; ES = effect size. * Significant difference ($p < 0.05$)

Source: The authors

Statistical Analysis

Descriptive statistics were expressed as mean and standard deviation for continuous variables, and as median and interquartile range (Q1-Q3) for categorical variables. The instrument's internal consistency was evaluated based on Cronbach's Alpha. Data normality was verified by the Kolmogorov-Smirnov test. PT comparison in the qualifying phase of the championship between the LPT and SPT groups was performed by Student's independent t-test. To compare the level of motivation between the LPT and SPT groups, the Mann-Whitney U test was used. The level of significance was set at 5% ($p < 0.05$). To verify differences between the SMS dimensions, the Friedman test followed by the Wilcoxon test was adopted. To control type I error, the Bonferroni correction was employed ($p < 0.0023$). Data were analyzed using the software SPSS® for Windows®, version 18.0. The effect size was calculated following the recommendations of Field³⁴. For Student's independent t-test, the ES was calculated by the equation: $ES = \sqrt{t^2/t^2 + df}$, where t = t-statistic value, df = degrees of freedom. For the Mann-Whitney U test, the ES was calculated by the equation: $ES = Z/\sqrt{N}$, where, Z = z-score, and N = total number of cases³⁴. In accordance with recommendations by Cohen³³, the ES was classified as small ($0.1 < ES < 0.3$), medium ($0.3 < ES < 0.5$) and large ($ES \geq 0.5$).

Results

Table 1 presents medians and comparisons of each dimension referring to the under-20 football athletes' assessed motivation. The athletes presented higher scores of intrinsic motivation, with intrinsic motivation to experience stimulation scoring the highest in comparison with the other dimensions ($p < 0.0023$). The demotivation dimension scored the lowest in comparison with the other dimensions ($p < 0.0023$). A large effect size was identified for all observed differences ($ES > 0.5$).

Table 1. Comparison of the Under-20 football athletes' motivation dimensions

Motivation	Median	(Q1-Q3)
1) Demotivation*	1.25 ^{a, b, c, d, e, f}	1.00-2.00
2) EM of external regulation*	3.38 ^{a, g, h, i}	2.50-4.50
3) EM of introjected regulation*	3.75 ^{b, j, k, l}	2.50-5.00
4) EM of identified regulation*	3.75 ^{c, m, n, o}	2.54-4.75
5) IM to achieve goals*	5.00 ^{d, g, j, m, p}	4.25-6.00
6) IM to experience stimulation*	5.75 ^{e, h, k, n, p, q}	5.00-6.25
7) IM to know*	5.25 ^{f, i, l, o, q}	3.81-6.00
8) Self-Determination Index	7.69	5.20-9.29

Legend: IM= intrinsic motivation; EM= extrinsic motivation; Q1= first quartile; Q3= third quartile. *Significant difference ($p < 0.0023$) between: a) 1 and 2; b) 1 and 3; c) 1 and 4; d) 1 and 5; e) 1 and 6; f) 1 and 7; g) 2 and 5; h) 2 and 6; i) 2 and 7; j) 3 and 5; k) 3 and 6; l) 3 and 7; m) 4 and 5; n) 4 and 6; o) 4 and 7; p) 5 and 6; q) 6 and 7.

Source: The Authors

Table 2 shows as well that the LPT group scored higher in the intrinsic motivation dimensions compared to the SPT group ($p < 0.05$), with medium effect size in all dimensions. The SPT group also presented a greater demotivation compared to the LPT group ($p = 0.032$), with small effect size. The extrinsic motivation dimensions, in their turn, showed similar results ($p > 0.05$). Moreover, the LPT group had a higher self-determination index compared to the SPT group ($p = 0.001$), with large effect size.

In summary, these results indicate that, overall, motivation is different between the LPT and SPT groups, with intrinsic and demotivational factors strongly reinforcing these differences.

Table 2. Comparison between groups for self-determination index and motivation dimensions

Dimensions	LPT (n=28)	SPT (n=28)	Z	p	ES
	Median (Q1-Q3)	Median (Q1-Q3)			
DE	1.00 (1.00-1.50)	1.50 (1.00-2.75)	-2.140	0.032*	-0.285
EM-ER	3.12 (2.37-4.12)	3.62 (2.25-4.62)	-1.026	0.305	-0.137
EM-IR	3.75 (2.50-5.50)	3.62 (2.41-4.54)	-0.805	0.421	-0.107
EM-IR	4.00 (3.00-4.87)	2.87 (1.87-4.37)	-1.847	0.065	-0.246
IM-AG	5.25 (4.62-6.00)	4.37 (3.62-5.25)	-2.845	0.004*	-0.380
IM-ES	6.00 (5.37-6.50)	5.12 (4.75-5.87)	-3.044	0.002*	-0.406
IM-K	5.37 (4.37-6.25)	4.50 (3.00-5.50)	-2.597	0.009*	-0.347
SDI	8.31 (6.81-10.02)	5.23 (3.77-7.15)	-4.679	0.001*	-0.625

Legend: LPT= long playtime; SPT= short playtime; ES= effect size; DE= demotivation; EM-ER= extrinsic motivation of external regulation; EM-I= extrinsic motivation of introjected regulation; EM-ID= extrinsic motivation of identified regulation; IM-AG= intrinsic motivation to achieve goals; IM-ES= intrinsic motivation to experience stimulation; IM-K= intrinsic motivation to know; SDI= self-determination index *Significant difference ($p < 0.05$)

Source: The authors

Discussion

The objective of this study was to compare the level of motivation of football athletes with LPT and SPT in a competition, mainly due to the importance of motivational factors in the construction of sports career, especially in a decisive moment marked by the uncertainties of under-20 athletes as to becoming professionals or not in football. Broadly speaking, the results of the present study indicated that the U-20 football athletes had positive self-determination indexes and scored higher in intrinsic motivation dimensions. LPT athletes

showed higher SDI scores and proved to be more motivated intrinsically. The SPT athletes, on the other hand, proved to be more demotivated. As for extrinsic motivation, the groups were similar.

The present study observed (Table 1) that the assessed U-20 football athletes scored higher in intrinsic motivation, followed by extrinsic motivation and demotivation, with the latter, in turn, being the least evident, confirming the theoretical assumptions of the self-determination *continuum*¹⁵. The findings indicate that these athletes are more motivated by the satisfaction and pleasure with sports practice, which means having more time on the pitch in football sports competitions, corroborating with the findings of other studies that have presented similar results, according to which football players showed superior levels of intrinsic motivation in relation to those of extrinsic motivation and demotivation^{21,26,27}.

As for comparing (Table 2) intrinsic motivation dimensions between athletes with LPT and SPT in official matches, LPT ones were more intrinsically motivated for football, indicating that they have a more intrinsic behavior towards playing football compared to SPT athletes. It is possible to see that the athletes' intrinsic motivation is linked to their voluntary participation in sports practice, with an apparent absence of rewards or external pressure¹⁸. Intrinsically-motivated athletes are characterized by an interest in learning more about their modality, by their willingness to overcome challenges, by the satisfaction and pleasure they derive from playing their sport modality^{3,35}. In this sense, a possible explanation for the results found may relate to the fact that the athletes with LPT in official matches are more likely, for instance, to act and show their value in U-20 football. In addition, by playing more, athletes have more chances to experience new challenges, to express their abilities and to live stimulating experiences during official matches. On the other hand, athletes with SPT for playing less tend to have little fun and may present reduced levels of practice of this sport and, consequently, show lower intrinsic motivation values.

Concerning the comparison (Table 2) of extrinsic motivation dimensions according to playtime (PT) in official matches, there were no statistically significant differences between LPT and SPT athletes. Extrinsic motivation is connected to external factors and occurs when the individual performs an activity in the sense of obtaining some type of financial reward or to avoid punishment^{3,35}. In football, athletes are commonly awarded prizes for productivity by winning titles. Normally, this reward is meant for athletes who participate in the match, and aims to stimulate the athlete's higher productivity and performance. In this case, the results found in the present study can be justified by the fact that both LPT and SPT athletes would have the same expectations about external factors, such as rewards and/or prizes, since in the Under-20 category the latter are not as constant as in professional football. It is also worth noting that due to the peculiarities of the U-20 category, regardless of PT amount, athletes tend not to worry much about external reward aspects, as the greatest prize is to be promoted to the professional category and play the sport modality of their preference⁵.

With regard to comparing (Table 2) the demotivation dimension according to PT in official matches, those athletes with SPT in official matches were more unmotivated to play football in relation to LPT ones in official matches. In this psychological state, athletes experience a feeling of incompetence and lack of control with respect to achieving a desired result¹⁵, characterized by a feeling of hopelessness in which they do not perceive their importance within the team, so both the extrinsic and the intrinsic motivation are not capable of affecting the performance of an athlete who does not see a reason to continue playing the sport^{29,35}. In this case, it is hypothesized that, because SPT athletes are less likely to play in the main team, they would also have few expectations to be successful as high-performance football athletes. It is also possible that SPT athletes have a reduced perception about the

importance of their participation within the team in the competition, which may increase their demotivation to practice football and, in some cases, lead them to abandon the sport³⁶.

The relevance of the findings lies on the fact that this is the first study that has been proposed to investigate the motivational aspect of athletes with different PTs in official matches, bringing important questions to the understanding of how PT can interfere with an athlete's motivation. With that said, it is important that future investigations advance in relation to these two factors, in order to analyze them in different categories, pointing out their implications to the formation process of football athletes.

It is worth highlighting as limitation of this study that the PT data of the athletes were collected from reports made available on the official website of Minas Gerais's Football Federation and, although they are official match documents, human errors may occur in the registration of information relating to substitutions, injury times and PT by athlete. Another limitation concerns the cross-sectional delineation of this study; a longitudinal analysis would allow identifying variations in the athletes' levels of motivation as a function of PT during various competitions of a U-20 team's season.

Conclusions

It is concluded that the Under-20 football athletes assessed in the present study present different motivational profiles in relation to PT in a competition, with LPT athletes obtaining higher self-determination indexes, proving to be more intrinsically motivated and less motivated for football practice compared to SPT ones.

As practical implications, the findings of this study emphasize the importance of monitoring and controlling the activity time of U-20 athletes in official matches, since it seems evident that PT affects the motivation levels of these athletes in the final formation phase. These findings reinforce the need for professionals working in U-20 football to stay attentive to these two factors, which may interfere with the professionalization process of young athletes.

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