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Original Article

Behavioural Regulation in football: a sex comparison

Short title: Behavioural Regulation

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Astract

The study investigates the differences in types of behavioural regulation between male and female football players. The study involved 293 football players (110 women) aged between 18 and 32 (22.15 ± 4.18 years). The Behavioural Regulation in Sport Questionnaire was used to assess six types of motivation regulation. Both sexes showed high levels of self-determined motivation (e.g., intrinsic motivation: males = 5.84±.91; females = 6.01±.94) and low levels of amotivation (males = 1.34±.55; females = 1.39±.63) and external regulation (males = 1.99±1.01; females = 2.10±1.02). Women showed higher levels of intrinsic motivation and introjected regulation. Statistically significant differences were found between the sexes in introjected (p=.03; d=.19), identified (p=.04; d=.05), integrated (p=.04; d=.06), and intrinsic (p=.03; d=.18). Athletes of both sexes show healthy and self-determined motivational profiles. Although there are some differences between sexes, they are not significant. The results suggest that coaches and sports organisations should promote training contexts that support autonomy, competence, and relationships in order to strengthen forms of self-determined motivation in soccer players.

Keywords: Self-Determination Theory; Motivation; Football; Sex.

Introduction

Understanding the motivational dynamics underlying participation in sport has become increasingly relevant in recent years, particularly in high-demand team sports like football. Among the most influential theoretical models in this domain is Self-Determination Theory (SDT) (Deci & Ryan, 1985; 2000; Ryan & Deci, 2017), which provides a comprehensive framework for interpreting the quality—not just the quantity—of motivation. In addition, the theory states that psychological well-being, performance, and personal growth depend on the satisfaction of three basic and universal psychological needs: autonomy (feeling that one acts by choice and with a sense of will), competence (perceiving oneself as capable, effective, and constantly progressing), and relationship (feeling connected, accepted, and valued by others). Central to SDT is the concept of behavioural regulation, referring to the different forms of motivation that govern human action, which are positioned along a self-determination continuum: from intrinsic motivation to amotivation, with several types of extrinsic motivation in between (Deci & Ryan, 2000). This theoretical perspective enables researchers to explore how and why athletes engage in their sport, and how these motivational qualities impact performance, persistence, and well-being.

Football, known for its strategic complexity, physical intensity, and socio-emotional demands, presents a rich context for the examination of behavioural regulation. The sport's widespread popularity among both sexes provides an opportunity to investigate potential motivational differences between male and female players, whose engagement in football may be shaped by different developmental, psychological, and sociocultural trajectories (Chalabaev et al., 2013; Vella et al., 2011). While the global football community has seen substantial growth in women's participation, disparities persist in

terms of visibility, resources, and support. These differences may, in turn, influence the underlying behavioural regulations driving football involvement for male and female athletes.

Research grounded in SDT emphasises the importance of the satisfaction of three basic psychological needs—autonomy (feeling volitional and self-directed), competence (feeling effective and capable), and relatedness (feeling connected and valued by others)—as essential conditions for the development of self-determined motivation (Deci & Ryan, 2000; Ryan & Deci, 2017). When athletes experience environments that support these needs, they are more likely to internalise the value of sport participation, engage in activities willingly, and regulate their behaviour through more autonomous forms of motivation (Standage & Ryan, 2012). Conversely, when these needs are frustrated, individuals are more prone to controlled forms of regulation—such as external or introjected motivation—or even amotivation, which is characterised by a lack of intention or purpose in behaviour (Pelletier et al., 2004).

Empirical research has consistently linked more autonomous forms of motivation (intrinsic and identified regulation) with positive outcomes in sport, including sustained engagement, higher performance, emotional resilience, and reduced risk of burnout (Alvarez et al., 2009; Gillet et al., 2010; Hodge et al., 2008). On the other hand, controlled regulation and amotivation have been associated with anxiety, low self-esteem, decreased effort, and dropout from sport (Bartholomew et al., 2011; Sarrazin et al., 2002). These motivational pathways may operate differently across sexes due to variations in socialisation experiences, coaching styles, and perceived social support (Appleton & Duda, 2016). For example, girls and women in sport often face distinct societal pressures and barriers compared to their male counterparts, which may influence the extent to which they internalise the value of sport participation or perceive autonomy in their choices.

Moreover, recent studies have suggested that female athletes might display higher levels of introjected and external regulation, reflecting internal pressure and social contingencies, while male athletes are often more likely to report higher levels of intrinsic motivation and identified regulation (Fortier et al., 1995; Ntoumanis, 2001). These findings raise important questions about the motivational climate created in football environments and whether it fosters or hinders the development of self-determined forms of behavioural regulation for all athletes, regardless of sex. Furthermore, coaching practices and organisational structures that fail to account for these psychological differences may inadvertently contribute to disengagement or decreased performance in female players. Despite the richness of the literature on SDT in sport, there is still a lack of comprehensive studies that compare male and female footballers' behavioural regulation profiles using validated multidimensional measures. Most existing research focuses either on general motivational patterns or isolated populations, often neglecting the intersection of sex and motivation within the same sporting discipline. The current study seeks to address this gap by applying SDT to examine and compare the behavioural regulation of male and female football players across different motivational types, including intrinsic, identified, introjected, external regulation, and amotivation. The following hypotheses were defined: H1) male and female soccer players will show higher levels of self-determined motivation (intrinsic motivation, integrated and identified regulation) and lower levels of controlled regulation (external and introjected regulation) and amotivation; H2) Will there be statistically significant differences between genders in the different types of behavioural regulation?

By adopting a comparative approach, this study aims not only to map the motivational landscape of contemporary football but also to explore the potential psychological inequalities that may exist between male and female athletes. Such knowledge is essential

for informing evidence-based interventions that promote more equitable, supportive, and need-satisfying sporting environments. Ultimately, fostering self-determined motivation in football can enhance not only performance and persistence but also the long-term well-being and personal growth of athletes across all levels and sexes.

Method

Study design

This study follows the cross-sectional method, as it conducted an assessment at a specific moment.

Participants

A total of 293 football athletes (female= 110), federated and from different Portuguese clubs, participated in present study voluntarily participated in this study, with ages ranging from 18 to 32 years (Mean (M)=22.15; Standard Deviation (SD)=4.18). Their years of practice varied between 6 and 15 years (M=7.98; SD=4.96). The required sample size was calculated through G*Power (Faul et al., 2007), considering the following input parameters: t-test for independent samples, effect size *d* (0.5), *α* (0.5), and statistical power (0.95). The required sample size was 105 in each group, which was respected in the present study.

Procedures

Data collection

Prior to initiating data collection, the study received formal approval from the relevant ethics committee (CE/IPLEIRIA/26/2021). Subsequently, authorisation was obtained from the participating football clubs, and all individuals provided written informed consent. To safeguard participant privacy, data were gathered and analysed anonymously, in strict accordance with the ethical principles established by the World Medical Association's Declaration of Helsinki (World Medical Association, 2013). Additionally, it is worth noting that the questionnaires were administered at the start of training sessions (afternoon), with the completion process averaging approximately 12 minutes.

Measure

Behavioural Regulation Sport Questionnaire (Lonsdale et al., 2008), Portuguese version by Monteiro et al. (2018, 2019). This questionnaire consists of 24 items grouped into 6 dimensions (four items each), corresponding to the types of motivational regulation underlying the motivational continuum of SDT. The items are rated on a Likert scale ranging from 1 ("not at all true") to 7 ("very true"). A previous study supports its validity and reliability in the sports context across different cultures (Viladrich et al., 2013).

Statistical Analysis

Means, standard deviation and bivariate correlations were calculated for all studied variables. To answer the objective of this study, an independent sample t-test was performed. For this test, a statistical significance value of 0.05 was assumed to reject the null hypothesis. (Ho, 2014). In case of a significant result, an effect size via Cohen's d will be considered (Denis, 2019). Based on Cohen's (Cohen, 1988) recommendations, the

following cut-off of effect sizes was considered: trivial (0–0.19), small (0.20–0.49), medium (0.50–0.79) and large (0.80 and greater).

Results

An initial screening of the dataset revealed no missing values or extreme outliers, allowing for the inclusion of the full sample in subsequent analyses. Table 1 displays the descriptive statistics (means, standard deviations) and the bivariate correlations among the study variables. Overall, athletes reported elevated levels of self-determined motivation, including identified regulation, integrated regulation, and intrinsic motivation, while scoring lower on non-self-determined forms of motivation, such as amotivation, external regulation, and introjected regulation. The correlation matrix indicated that all associations among the variables were statistically significant.

Table 1. Bivariate correlations

		1	2	3	4	5	6
1.	AM	1	-	-	-	-	-
2.	EX	.39**	1	-	-	-	-
3.	IJ	.23**	.19*	1	-	-	-
4.	ID	-.43**	-.14*	.38**	1	-	-
5.	IG	.-.44**	-.25**	.26**	.66**	1	-
6.	IM	-.50**	-.26**	.18*	.62**	.74**	-
	M	1.36	2.03	3.48	5.62	5.51	5.94
	SD	.58	1.01	1.28	.83	1.04	.93

Note. Am= amotivation; EX= external regulation; IJ= introjected regulation: ID= identified regulation; IG= integrated regulation; IM= intrinsic motivation; M=mean; SD = Standard Deviation; *=p<.001; **=p<.005.

Table 2 shows the differences in motivational regulation according to sex. Significant differences were found in introjected, identified, integrated regulation, and intrinsic motivation. However, the observed effects were trivial.

Table 2. Means and standard deviation of each group and the mean difference

	M ± SD Male group	M ± SD female group	*t*	*p*	*d*
AM	1.34±.55	1.39±.63	-.71	.48	-
EX	1.99±1.01	2.10±1.02	-.84	.39	-
IJ	3.39±1.29	3.63±1.26	-1.52	.03	.19
ID	5.63±.79	5.59±.89	.42	.04	.05
IG	5.52±1.01	5.46±1.10	.40	.04	.06
IM	5.84±.91	6.01±.94	-2.02	.03	.18

Note. M= mean; SD= standard deviation; Am = amotivation; EX= external regulation; IJ= introjected regulation; ID = identified regulation; IG= integrated regulation; IM= intrinsic motivation; t= value of t-test; p= level of significance; d= effect size.

Discussion

The aim of this study was to analyse and compare the types of behavioural regulation in male and female football players. The results show overall high levels of self-determined motivation (intrinsic motivation, integrated and identified regulation) and lower levels of controlled regulation (external and introjected regulation) and amotivation, which is consistent with the literature that associates structured and autonomy-supportive sports contexts with more self-determined motivational profiles (Deci & Ryan, 2000; Ryan & Deci, 2017).

The results of the descriptive statistics presentation a predominance of more self-determined forms of regulation in both sexes, with emphasis on intrinsic motivation, identified regulation and integrated regulation, consistent with previous research showing that athletes who get involved in sport for personal reasons, such as pleasure, challenge or personal value attributed to the activity, tend to show better performance, greater persistence and psychological well-being (Gillet et al., 2010; Hodge et al., 2008). On the other hand, amotivation and external regulation appear with low average values, signalling that the majority of athletes don't get involved in the sport just because of external pressures or lack of purpose. Such motivational patterns are desirable and reflect

sporting contexts where there is greater support for the basic psychological needs of autonomy, competence and relatedness, as advocated by SDT (Deci & Ryan, 2000).

Although statistically significant differences were found between the sexes in the dimensions of introjected, identified and integrated regulation and intrinsic motivation, the effect size was trivial ($d < 0.20$). This finding corroborates studies that suggest that although there are some sex variations in motivational styles, they tend to be small when considering athletes in similar contexts and with comparable levels of competitive involvement (Ntoumanis, 2001; Vella et al., 2011). The higher intrinsic motivation score for females may be related to a possible greater symbolic and affective value attributed to the practice of sport, given the recent history of less inclusion and recognition of women's sport. These results are in line with works such as those by Fortier et al. (1995), who point out that female athletes can demonstrate greater motivation based on the internalisation of values and the intrinsic pleasure of the activity, even in the face of structural and social barriers. However, it is also important to point out that women showed higher levels of introjected regulation, which may indicate that feelings of guilt or internal pressures in their sporting practice negatively influence self-determination in women, promoting more controlled forms of motivation.

The correlations between the different types of behavioural regulation show expected trends, according to the SDT continuum. For example, amotivation correlated negatively with all types of self-determined motivation, especially intrinsic motivation, reinforcing the idea that when athletes don't perceive meaning or control in the activity, their experience is less pleasurable and significant. The positive and strong correlations between identified, integrated regulation and intrinsic motivation show the theoretical coherence of the instrument used and the robustness of the motivational structure assessed (Lonsdale et al., 2008; Monteiro et al., 2018).

Considering Self-Determination Theory, the results of this study can be interpreted as reflecting sporting contexts that, in general, seem to support the satisfaction of basic psychological needs for autonomy, competence, and relatedness, thus favouring more self-determined motivational profiles in athletes of both sexes. The results of this study reinforce the importance of creating sports environments that promote the satisfaction of basic psychological needs, with a focus on autonomy, competence, and relatedness. Coaches, trainers and sports agents should be aware of the possible differences in the way athletes of different sexes experience motivation, offering personalised support that is sensitive to the specificities of each group. In addition, training programmes for coaches could integrate content on SDT and practical strategies to foster a more self-determined motivational climate. This could include practices such as giving athletes a voice in decisions, recognising individual efforts, offering informative feedback and cultivating positive interpersonal relationships within the team.

Despite the results of this study, some limitations should be noted. The cross-sectional design does not allow for causal inferences between the variables. On the other hand, the study is based exclusively on self-reported measures. Future research should adopt longitudinal methodologies and include observational or qualitative measures to improve understanding of motivational mechanisms. Another limitation resides in the lack of analysis of moderation by factors such as competitive level, cultural context, or type of club affiliation (amateur vs. professional), which can influence the motivational profile. Finally, investigating more complex interactions between the sexes, support from leading figures (such as coaches), and organisational structure could shed light on dynamics that have not yet been explored in the field of football motivation.

Conclusion

Male and female football players in this study have essentially self-determined motivational profiles, which favour continuity and well-being in sports practice. Sex differences, although statistically significant in some cases, do not mean substantial differences in behavioural regulation. Public policies and training programmes should focus on creating inclusive and motivating contexts, especially for women, with a view to the sustainable development of football in all its aspects.

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