Multilevel Analysis of Coach Leadership, Group Cohesion and Collective Efficacy in Semiprofessional Football Teams

FRANCISCO M. LEO*, GONZÁLEZ-PONCE I.**, J. J. PULIDO**,
M. A. LÓPEZ-GAJARDO***, M. A., and T. GARCÍA-CALVO***

(*) *Faculty of Teacher Training, University of Extremadura, Spain*
(**) *Faculty of Education and Psychology, University of Extremadura, Spain*
(***) *Faculty of Sport Sciences, University of Extremadura, Spain*

This study examined how perceptions of leadership behavior in semi-professional sport predicted group cohesion and collective efficacy in a sample of Spanish football players. We adopted a longitudinal perspective, taking measures at the beginning, the middle, and the end of a sport season, and three levels of analyses were specified: intra-individual, inter-individual, and inter-team level. Multilevel modeling analysis showed that perceptions of positive leadership behaviors, such as training instruction, social support, positive feedback, and democratic behaviors, were a stronger predictor of a high level of cohesion and collective efficacy than were perceptions of coaches' autocratic behavior. Predictive effects differed as a function of time, level of analyses and the outcome variable under investigation. The results indicate the importance of considering the coaches' leadership styles when examining group cohesion and collective efficacy at different levels of analyses in semi-professional sports.

KEY WORDS: Coaching, Psychology, Team Sport.

Several researchers have emphasized the important role of coach behaviors to affect players' perceptions of group processes, such as team cohesion (Cronin, Arthur, Hardy, & Callow, 2015; Fransen, DecroosBroek, & Boen, 2016; Jowett & Chaundy, 2004) and collective efficacy (Fransen et al., 2016; Hampson & Jowett, 2014; Hoigaard, De Cuyper, Fransen, Boen, & Peters, 2015; Leo, Sánchez-Miguel, Sánchez-Oliva, Amado, & García-Calvo, 2011). The type of leadership used by the coach in his relationship with the players or with the group management can make the players are more united and

Correspondence to: Francisco M. Leo Marcos. Faculty of Teacher Training. University of Extremadura. C/Avenida de la Universidad, S/N, C.P.: 10003, Cáceres, Spain (e-mail: franmilema@unex.es)

trust fully in the group to achieve goals (Bandura, & Kavussnu, 2018; Fransen et al., 2016; Hampson & Jowett, 2014; Jowett & Chaundy, 2004). These studies have analyzed the relationships between coach leadership with cohesion and collective efficacy at inter-individual level at specific points in the season in amateur teams. Nevertheless, if we consider that these variables are dynamics and more important in performance environments (Heuzé, Raimbault, & Fontayne, 2006; Leo et al., 2011) and that players are part of a group (Leo, González-Ponce, Sánchez-Miguel, Ivarsson, & García-Calvo, 2015), it would be interesting to see what happens throughout a season in a high-performance context, as well as test each player within the team. Thus, to extend the relevant literature it seems necessary to examine players' perceptions of their coach's leadership behavior and group processes over time at different levels of analysis in performance teams.

Leadership and Group Processes

Leadership can be defined as "the behavioral process of influencing individuals and groups towards set goals" (Barrow, 1977, p. 232). Multidimensional Leadership Model (MLM: Chelladurai, 1993) is one of the most relevant theories for the study of leadership in sports. This model is made up of four basic components: the coach's behavior, its antecedents, the influence of transactional leadership, and the outcomes of the coach's behavior. According to this model, leadership effectiveness is a function of three interacting aspects of the coach's behavior: the coaches' actual behavior, the coaching behavior preferred by the players, and the coaching style that is required by the specific sport context. Success outcomes of the coach's behavior will occur when there is congruence between these three aspects of the coaches' behavior (actual, preferred and required behavior).Thus, the coach can display different types of leadership, such as training and instructions, social support, positive feedback, democratic behavior, and autocratic behavior, which can influence different outcomes (Chelladurai, 1993).

As a result of this theory, the authors developed the Leadership Scale of Sport (LSS; Chelladurai & Saleh, 1980) that has been used to investigate coaches' perceptions of their own leadership behaviors over the last two decades (Gardner, Shields, Bredemeir, & Bostrom, 1996; Hampson & Jowett, 2014; Hoigaard et al., 2015; Leo, Sánchez-Miguel, Sánchez-Oliva, Amado, & García-Calvo, 2013; Ramzaninezhad & Keshtan, 2009; Shields, Gardner, Bredemeier, & Bostrom, 1997; Westre & Weiss, 1991). The LSS categorizes coach leadership behavior into five independent subscales: training and in-

struction behavior, social support, positive feedback, democratic behavior, and autocratic behavior (see Chelladurai & Saleh, 1980).

A considerable amount of research studies were conducted to test the links hypothesized in the model through LSS (Gardner et al., 1996; Hampson & Jowett, 2014; Hoigaard et al., 2015; Leo et al., 2013; Ramzaninezhad & Keshtan, 2009; Shields et al., 1997; Westre & Weiss, 1991). Despite general support, the authors have also identified some limitations to Chelladurai's model. The main limitation to Chelladurai's model (1993) is that it focuses on only two consequences of the coach's behaviors: performance and athlete satisfaction. That is, the model fails to recognize that the coach's behavior can also affect many other aspects of the athletes' psychological well-being and behavior (e.g., persistence, commitment, cohesion, collective efficacy) (Hampson & Jowett, 2014; Hoigaard et al., 2015; Leo et al., 2013; Ronayne, 2004).

Thus, the coach can display different types of leadership, such as training and instruction, social support, positive feedback, democratic behavior, and autocratic behavior, which can also influence the group processes that take place within a sports team (Chelladurai, 1993), such as cohesion and collective efficacy, which are the specific variables of the present study's focus (Hampson & Jowett, 2014; Jowett & Chaundy, 2004; Leo et al., 2013). The way in which a coach behaves with his players, gives guidance or directions, makes decisions, and solves conflicts can promote in his team a greater desire to work as a team and to generate more cohesion (defined as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs", Carron, Brawley, & Widmeyer, 1998, p. 214). Furthermore, this coach behavior can improve the confidence in the ability of the team and the collective efficacy (understood as "a group's shared beliefs in its capacities to organize and execute actions to produce a desired goal", Bandura, 1997, p. 476).

Specifically, when a coach is supportive, takes into account their views, helps solve the problems of the group, clearly explains the tasks to be performed, and is concerned that there is a coordinated effort, the coach may generate more confidence and a more suitable working environment (Bandura & Kavussanu, 2018; Hampson & Jowett, 2014; Hoigaard et al., 2015; Jowett & Chaundy, 2004; Leo et al., 2013). However, if the coach is autocratic, makes all the decisions without regard for his players, expresses himself/herself with an authoritarian tone, and refuses to change his mind, this coach can reduce players' confidence in their ability to face competition and can create divisions and unrest among players, causing a lack of unity in the group (Hoigaard et al., 2015; Ramzaninezhad & Keshtan, 2009; Ronayne,

2004). Therefore, through their behavior and guidance of their players, coaches can encourage greater team unity and collective efficacy (Hampson & Jowett, 2014; Hoigaard et al., 2015; Jowett & Chaundy, 2004; Leo et al., 2013; Ronayne, 2004).

The Present Study

Taking into account the studies conducted to date, this investigation can provide responses to the gaps to Chelladurai's model (1993), examining how coach's behavior can also affect different psychological behaviors, from a new approach about the influence of coaches' leadership on cohesion and collective efficacy. Also, this study pretend provides the scientific literature with novel information about how coaches' leadership behaviors can predict these variables over time. The examination of effects of coaches' leadership on cohesion and collective efficacy has been unusual in longitudinal studies (Ronayne, 2004). This is rather unfortunate because this variables are dynamic and can vary across time (Leo et al., 2015).

Moreover, the type of analysis carried out can provides information about this prediction at the intra- and inter-individual and inter-team levels, which can lead to the establishment of relations unknown until now, at different levels of analysis. The extent to which leadership outcomes are best predicted by between-person differences in the perceptions of leadership behaviors or within-person changes in such perceptions is largely unknown. For instance, finding that within-person variability in coaches´ leadership better predicts certain outcomes than do between-person individual differences in such perceptions of the leadership behaviors may aid in the design of more effective interventions. Moreover, identifying that specific leadership behaviors are more strongly associated with outcomes throughout a season, it would confirm to the relevance of promoting a sustained positive leadership in sport.

Thus, spanning a 1-season period, the present study examined how perceptions of leadership behaviors, created by coaches, predict indices of group cohesion and collective efficacy in semi-professional sport. Intra-individual changes, as well as inter-individual and inter-team changes, mean differences in perceptions of leadership behaviors were modeled as predictor variables. Considering these aims, we developed the following hypotheses:

1. Changes in perceptions of leadership behaviors (except for autocratic leadership) would be positively associated with changes in group cohesion, and changes in perceptions of autocratic leadership behaviors would be negatively associated with group cohesion.

2. Higher mean scores for perceptions of coaches' leadership behaviors -democratic behaviors, training and instruction, social support, and positive feedback- would be positively related to group cohesion. In contrast, higher mean scores in coaches' autocratic behaviors were expected to be negatively associated with group cohesion.

3. Changes in perceptions of leadership behaviors (except for autocratic leadership) would be positively associated with changes in collective efficacy and changes in perceptions of autocratic leadership behavior would be negatively associated with collective efficacy.

4. Higher mean scores for perceptions of coaches' leadership behaviors -democratic behaviors, training and instruction, social support, and positive feedback- would be positively related to collective efficacy. in contrast, higher mean scores for coaches' autocratic behaviors were expected to be negatively associated with collective efficacy.

Method

PARTICIPANTS

The participants were male semi-professional football players from twenty teams who participated in the xiv group of the third division of the spanish football league. at the beginning of the season (time 1), we recruited a total of 377 players ranging in age from 16 to 39 years with a mean age of 24.51 years (sd = 3.73). at the middle of the season (time 2), there were a total of 339 players ranging in age from 16 to 38 years with a mean age of 24.41 years (sd = 4.24). at the end of the season (time 3), there were a total of 303 players ranging in age from 16 to 39 years with a mean age of 24.58 years (sd = 4.26).

INSTRUMENTS

Leadership behaviors. Coach leadership behaviors were assessed using an adapted Spanish version of the Leadership Sport Scale (LSS: Chelladurai & Saleh, 1980) carried out by Crespo, Balaguer, and Atienza (1994). This is a 40- item instrument designed to measure five dimensions of leadership: training and instruction (13 items, i.e., "My coach sees to it that efforts are coordinated"), democratic behaviors (nine items, i.e., "My coach asks for the opinion of the athletes on strategies for specific competitions"), social support (eight items, i.e., "My coach looks out for the personal welfare of the athletes"), positive feedback (five items, i.e., "My coach gives credit when it is due"), and autocratic behaviors (nine items, i.e., "My coach speaks in a manner not to be questioned"). The CFA results with data taken at the beginning of the season confirmed acceptable model fit (χ^2 = 442.38; p = .00; df =160; χ^2 /df = 2.76; CFI = .90; IFI = .90; RMSEA = .06; SRMR = .05). Responses were rated on a 5-point scale ranging strongly disagree (1) to strongly agree (5).

1. Cohesion. An adapted Spanish version of the Group Environment Questionnaire (GEQ: Carron, Widmeyer, & Brawley, 1985) carried out by Leo, González-Ponce, Sánchez-Oliva, Pulido, and García-Calvo (2015), was used to assess team cohesion. This inventory has 12 items are grouped into four factors: Group Integration-Task (GI-T, three items, i.e., "Team members are united in their efforts to reach their performance goals in training sessions and matches"), Group Integration-Social (GI-S, 3 items, i.e., "Team members would like to spend time together in situations other than training and games"), Individual Attraction to the Group-Task (ATG-T, three items, i.e., "On this team, I can do my best"), and Individual Attraction to the Group-Social (ATG-S, three items, i.e., "The team is one of the most important social groups I belong to"). A CFA with our data taken at the beginning of the season showed acceptable model fit ($\chi^2 = 128.59$; p < .01; df = 48; $\chi^2/df = 2.67$; CFI = .91; IFI = .91; RMSEA = .06; SRMR =.05). Responses were rated on a 5-point scale ranging strongly disagree (1) to strongly agree (5).

2. Collective Efficacy. To assess collective efficacy, the "Cuestionario de Eficacia Colectiva en Fútbol" (CECF, in English, "The Football Collective Efficacy Questionnaire"), developed by Leo et al. (2011), was used. This instrument starts with a stem phrase (i.e., "Our team's confidence in our capability to…") and has a total of 26 items that refer to some offensive (i.e., keeping ball possession in the face of rival pressure) and defensive football situations (i.e., "…to defend set piece ball situations"), which are grouped into a single factor. The CFA results with data taken at the beginning of the season confirmed acceptable model fit ($\chi^2 = 461.31$; p = .00; df = 160; $\chi^2/df = 2.73$; CFI = .90; IFI = .91; RMSEA = .06; SRMR = .05). Responses were rated on a 5-point scale ranging bad (1) to excellent (5).

In all instruments, we ran a CFA of the data from the middle and the end of the season which showed similar fit indices to those obtained at the beginning of the season. Internal consistency values can be seen in Table I in all measurements.

PROCEDURE

In this work, we used a correlation methodology with a longitudinal design. We carried out three assessments at three different time points. Measurements were taken at three different times during the season (at the end of the preseason, to ensure that the players had practiced for at least month and a half; at the middle, between the end of the first round and the beginning of the second round of competition; and at the end of the season, when the season was just ending), separated by 20-22 week.

The study received ethical approval from the University. All participants were treated according to American Psychological Association ethics guidelines regarding consent, confidentiality, and anonymity of responses. Data collection took place at the clubs in group settings under the supervision of trained research assistants and without the presence of the coach. Questionnaires were matched over time using a coding system to protect anonymity.

Data Analysis

Multilevel regression analyses, employing MLWin 2.18 (Rashbash, Steele, Browne, & Goldstein, 2009), was used to examine changes in all variables over the three time points. This type of analysis is particularly useful

when there are missing observations since it does not assume equal number of measurement occasions for all individuals. Three levels of analyses were specified. Level 1 encompassed the repeated observations of all variables. These observations were nested within athletes; therefore the latter constituted level 2 in the analysis. Teams were the third level of the analysis. The analysis had two parts. The first part examined whether there were significant intra-individual variations in the means (intercepts) and rates of change (growth trajectories) of all variables under investigation. The second part aimed to ascertain whether any inter-individual variation found in the first step could be accounted for by a number of demographic and theory-based predictors.

Results

Descriptive Statistics, Cronbach's Alpha Coefficients and Bivariate Correlations

Means, standard deviations, and Cronbach's alpha coefficients for each variable at each time point are presented in Table 1. Most scales demonstrated acceptable internal consistency (i.e., $\alpha > .70$) (Nunnally, 1978), with the exception of some variables of the cohesion scale and democratic leadership, particularly at the first measurement wave. In light of this finding, GI-S was removed from further analyses. In contrast, we kept ATG-S and democratic leadership because its internal consistency coefficients at the remaining measurement waves were within acceptable limits. In general, participants reported scores above the midpoint of the scale for some leadership variables (democratic behaviors, training and instruction, social support and positive feedback), cohesion and collective efficacy. Participants also reported scores for autocratic leadership which were close to the midpoint of the scale.

Finally, bivariate correlations between all leadership behaviors, cohesion and collective efficacy variables are presented in Table I for Time 1, 2 and 3. In general, leadership behaviors (except for autocratic leadership) were associated with cohesion and collective efficacy in all times.

Variations In Intercepts And Growth Off All Variables

Following Singer and Willett's (2003) approach, we first tested a series of unconditional (i.e., intercept-only) models, one for each variable under investigation. Their purpose was to examine whether there was sufficient

TABLE I
Means, Standard Deviations, Cronbach's Alpha Coefficients And Correlations Of All Study Variables

		1	2	3	4	5	6	7	8	9
1. Training & Instruction		-	.30**	.38**	.49**	.07	.17**	.35**	.35**	.28**
2. Democratic			-	.46**	.48**	.15*	.19**	.28**	.29**	.29**
3. Social Support				-	.66**	-.03	.30**	.31**	.38**	.33**
4. Positive Feedback					-	.09	.22**	.30**	.36**	.31**
5. Autocratic						-	.01	.06	-.04	.15*
6. ATG-S							-	.26**	.34**	.24**
7. GI-T								-	.46**	.44**
8. ATG-T									-	.44**
9. Collective Efficacy										-
Time 1 (n = 377)	M	4.12	3.49	3.86	3.75	2.68	3.74	4.03	3.93	3.49
	SD	.61	.80	.78	.74	.88	.75	.76	.77	.51
	α	.75	.65	.73	.81	.68	.46	.73	.68	.79
Time 2 (n = 339)	M	4.04	3.14	3.74	3.64	3.03	3.93	3.60	3.75	3.36
	SD	.66	.86	.77	.76	.79	.81	.88	.83	.52
	α	.74	.67	.78	.84	.71	.76	.71	.77	.78
Time 3 (n = 303)	M	3.75	2.93	3.56	3.49	2.93	3.84	3.41	3.50	3.26
	SD	.79	.80	.83	.81	.79	.79	.80	.87	.53
	α	.86	.70	.86	.85	.73	.80	.67	.81	.79

Note. Correlations for Time 1 are presented in the upper right portion of the table. Correlations for Time 2 and 3 showed similar values. *p < .05, **p < .01.

between-person and between-team variation in the intercepts. The results revealed there was variability in the intercepts of some of the variables (see Table II). Intraclass correlation coefficients expressing the variability at the team level as a function of the total variability ranged from 0 to .38 (Mdn = .13). Intraclass correlation coefficients expressing the variability at the athlete level as a function of the total variability ranged from 0 to .46 (Mdn = .23); see Hox, Moerbeek, & Van de Schoot (2017).

We also tested a series of unconditional growth models to examine the rates of change of the leadership behaviors. With three time points, only linear changes could be examined. "Time" was centered at time 1 (i.e., the first wave of measurement was coded 0). The growth trajectories are presented in Table 2. As can be seen, the linear term (i.e., slope) for time was negative (i.e., indicating decrease over time) for all four positive leader dimensions, three of the four cohesion dimensions and collective efficacy. In contrast, the slope for time was significant and positive (i.e., indicating increase over time) for autocratic leadership. No significant temporal

TABLE II
Linear Changes in All Variables over the Three Measurement Occasions.

Variable List	Fixed Effects Model		Within-Person	Between-Athletes		Between-Teams		$R^2_{t=}$
	Intercept	Time (linear term)	Intercept variance	Intercept variance	Time variance	Intercept variance	Time variance	
Training & Instruction	4.18**	-.23**	.23**	.03	.00	.11*	.02	.23
Democratic	3.46**	-.24**	.43**	.00	.00	.28**	.03	.14
Social Support	3.89**	-.17**	.27**	.00	.00	.31**	.06**	.21
Positive Feedback	3.77**	-.14**	.26**	.12	.00	.18*	.05**	.20
Autocratic	2.75**	.14**	.38**	.37**	.02	.00	.00	.10
ATG-S	3.79**	-.01	.46**	.05	.00	.03	.00	.01
GI-T	4.01**	-.32**	.42**	.00	.04**	.18**	.00	.24
ATG-T	3.95**	-.23**	.46**	.04	.00	.06	.06	.19
Collective Efficacy	3.48**	-.11**	.09**	.11**	.00	.06	.03**	.30

Note. $R^2_{t=}$ Percentage of within-person variation accounted for by time. *p < .05, **p < .01.

changes were observed for ATG Social. These slope coefficients represent fixed effects (i.e., average change) over time across the whole sample. An inspection of the between-person and between-team variability of these slopes (Table 2) indicates relatively small variability in these rates of change. The $R^2_{\varepsilon=}$ in Table 2 indicates the amount of within-person variation in the variables under investigation explained by time. This is an estimate of effect size, analogous to an R^2 (McArdle & Woodcock, 1997). These values ranged from .01 to .42 (Mdn = .20).

EXAMINING THE PREDICTIVE EFFECTS OF LEADERSHIP BEHAVIORS

We ran a predictive model with four factors of cohesion and collective efficacy. All variables converted into z scores before they were entered into the multilevel equations; thus, their regression coefficients are standardized beta coefficients. In all models we controlled for the age of athletes.

In this model, in addition to the linear slope for time, five dimensions of leadership: democratic behaviors, autocratic behaviors, training and instruction, social support and positive feedback were entered into the level 1 equation (i.e., the intra-individual level). These variables were centered on each individual's unique mean over time, which enabled for a pure estimation of the intra-individual effects without being confounded by between-person differences (Enders & Tofighi, 2007; Lüdtke, Robitzsch, Trautwein, & Kunter, 2009). The slope parameters of these variables reflected the extent to which each individual's perception of the leadership behaviors predicted the outcome variables at the beginning of the study (because the time variable was centered at this time point). To explore whether this relationship changed significantly over the course of the study, time × predictor interaction terms were also entered into the level 1 equation.

Next, individuals' perceptions of the five leadership behaviors variables, averaged across time, were entered into the level 2 equation (i.e., the inter-individual level). These variables were centered on each team's unique mean, therefore, the slope parameters were interpreted as the degree to which individuals' average perceptions of the leadership behaviors relative to their teammates' perceptions predicted the outcome variables at the beginning of the study. Again, time × predictor interaction terms were entered into the models to examine whether these relationships changed across measurement occasions. Following the suggestion of Lüdtke et al., (2009), perceptions of the five leadership behaviors variables were averaged

across time and teams, and entered into the level 3 equation (i.e., the inter-team level). These variables were centered on the overall mean across all teams, therefore, the slope parameters were interpreted as the extent to which team average perceptions of the leadership behaviors relative to the grand team mean predicted the outcome variables at the beginning of the study. Again, time × predictor interaction terms were entered into the multilevel equations to examine whether these relationships changed across measurement occasions.

In the following sentences, we showed results in which the five dimensions of leadership behaviors were concurrent predictors of cohesion and collective efficacy (Table III). Regarding to cohesion factors, three significant relationship were found at intra-individual level: a) ATG-S was positively predicted by leader social support; b) ATG-T were positively associated with leader training instruction; and c) GI-T was negatively predicted by leader autocratic behaviors. These relationships were similar over time in all cases.

At inter-individual level, leader training instruction and social support were positive predictors of ATG-S. Furthermore, leader training instruction, democratic behaviors and social support were positive predictors of GI-T and ATG-T. These relationships were also invariant across time.

At the inter-team level, leader training instruction were significant and positive predictors of GI-T. Unexpectedly, teams with greater leader autocratic behavior scores at the beginning of the study had higher GI-T scores and for these teams the decline in GI-T was smaller over time. Furthemore, teams with higher leader training instruction and social support had higher scores on ATG-T; also the rate of decline in ATG-T over time was smaller in teams with higher social support. Unexpectedly, teams with high leader autocratic behaviors had higher ATG-T scores and showed a smaller decline in this aspect of cohesion over time.

Lastly, with regard to the dependent variable of collective efficacy, it was positively predicted at the intra-individual level by leader social support. Inter-individual differences in leader training instruction and leader democratic were predictive of collective efficacy. Unexpectedly, leader autocratic was also a significant predictor of collective efficacy. Finally, we note that collective efficacy produced some strange results when we ran the model. The problem was with level 3; many beta coefficients were above 1. It looks like the model cannot cope with 3 levels. There were problems with converge when the model was run with three levels and to achieve convergence we simplified the model.

TABLE III
Regression Coefficients and Standard Errors of the Multilevel Models Exploring Leadership Behaviors as Predictors of the Outcome Variables

	ATG-S β (SE)	GI-T β (SE)	ATG-T β (SE)	CE β (SE)
Intercept	-0.03 (0.05)	0.21 (0.05)**	0.15 (0.04)**	.11 (0.04)*
Time	0.04 (0.04)	-0.25 (0.04)**	-0.18 (0.04)**	-.16 (0.03)**
Intra-individual level				
Training & Instruction	-0.03 (0.10)	0.15 (0.09)	0.18 (0.09)*	0.15 (0.08)
Democratic	-0.09 (0.08)	0.11 (0.08)	0.00 (0.08)	-0.03 (0.07)
Social Support	0.28 (0.11)*	0.10 (0.10)	0.08 (0.10)	0.20 (0.09)*
Positive Feedback	0.09 (0.11)	-0.02 (0.10)	0.03 (0.10)	0.02 (0.08)
Autocratic	0.11 (0.08)	-0.16 (0.07)*	-0.04 (0.07)	.05 (0.06)
Training & Instruction x time	0.07 (0.09)	-0.09 (0.08)	-0.03 (0.08)	-.02 (0.07)
Democratic x time	0.04 (0.08)	-0.06 (0.07)	-0.01 (0.07)	.10 (.06)
Social Support x time	-0.10 (0.10)	0.12 (0.09)	0.05 (0.08)	-0.12 (0.08)
Positive Feedback x time	-0.02 (0.09)	0.02 (0.08)	0.03 (0.08)	0.05 (0.08)
Autocratic x time	-0.07 (0.07)	0.02 (0.06)	-0.04 (0.06)	-0.00 (0.06)
Inter-individual level				
Training & Instruction	0.16 (0.08)*	0.34 (0.07)**	0.32 (0.07)**	0.31 (0.07)**
Democratic	0.10 (0.06)	0.13 (0.06)*	0.15 (0.06)**	0.16 (0.06)**
Social Support	0.26 (0.09)**	0.21 (0.09)*	0.16 (0.08)*	0.01 (0.08)
Positive Feedback	-0.04 (0.09)	-0.04 (0.08)	0.02 (0.08)	.01 (.08)
Autocratic	0.02 (0.06)	0.03 (0.05)	-0.07 (0.05)	0.12 (0.05)*
Training & Instruction x time	-0.02 (0.06)	-0.10 (0.06)	-0.07 (0.06)	-0.06 (0.05)
Democratic x time	0.05 (0.05)	0.01 (0.05)	0.00 (0.05)	0.04 (0.04)
Social Support x time	0.02 (0.08)	0.05 (0.07)	-0.03 (0.08)	0.03 (0.06)
Positive Feedback x time	-0.03 (0.08)	0.03 (0.07)	0.01 (0.08)	0.02 (0.06)
Autocratic x time	-0.06 (0.05)	0.02 (0.04)	0.01 (0.05)	-0.03 (0.04)
Inter-team level				
Training & Instruction	-0.13 (0.16)	0.36 (0.15)*	0.31 (0.14)*	
Democratic	-0.01 (0.29)	0.45 (0.26)	0.16 (0.25)	
Social Support	-0.01 (0.28)	0.23 (0.26)	0.63 (0.25)*	
Positive Feedback	0.28 (0.36)	-0.14 (0.34)	-0.21 (0.32)	
Autocratic	-0.26 (0.16)	0.29 (0.15)*	0.30 (0.14)*	
Training & Instruction x time	0.18 (0.13)	0.04 (0.12)	0.08 (0.13)	
Democratic x time	-0.19 (0.23)	0.22 (0.20)	0.47 (0.23)	
Social Support x time	0.13 (0.23)	-0.20 (0.20)	-0.58 (0.22)**	
Positive Feedback x time	0.11 (0.29)	0.06 (0.26)	0.24 (0.29)	
Autocratic x time	0.11 (0.13)	-0.22 (0.11)*	-0.32 (0.12)**	

Note. *p < .05, **p < .01.

Discussion

Our purpose in this study was to examine how coach leadership can predict intra-individual changes, as well as inter-individual and inter-team differences, in group cohesion and collective efficacy in semi-professional sport. There is substantial evidence to indicate that perceptions of either type of leadership behavior can lead both to higher and lower developmental outcomes (Hampson & Jowett, 2014; Hoigaard et al., 2015; Leo et al., 2013; Ronayne, 2004). This study shows that perceptions of leadership behaviors in semi-professional sports may be related to variations in professional athletes' perceptions of group cohesion and collective efficacy. Furthermore, our study extends previous research by showing that these relationships can be observed over a long period of time (one season), because these variables are dynamic and change over time. The level at which such predictive effects were evident, and their duration, varied as a function of the variable under investigation.

To test the hypothesis 1, we first examined the predictive effects of perceptions of leadership behaviors on all dimensions of cohesion (i.e., ATG-S, ATG-T, and GI-T) at intra-individual level. For ATG-S, intra-individual associations with leaders' social support were positive at the beginning of the study. For dimensions of task cohesion, GI-T was negatively predicted by intra-individual changes in leaders' autocratic behaviors. Similar results were found by several researchers, who claimed that the perception of a low level of autocratic leadership was associated with high levels of task cohesion (Gardner et al., 1996; Ronayne, 2004) and social cohesion (Ramzaninezhad & Keshtan, 2009; Ronayne, 2004). Also, changes in training and instruction leadership were positively associated with changes in ATG-T. Similarly, Westre and Weiss (1991) previously reported that training instruction is considered to be one of the more task-oriented leadership behaviors, so its strong relationships with the task cohesion variables was expected. These results corroborate the first hypothesis, though only some types of leadership were associated with changes on cohesion.

Regarding the hypothesis 2, at the inter-individual level, players with higher average perceptions of leaders' training instruction and social support reported greater levels of ATG-S. These relationships were similar over time. With regards to task cohesion di mensions, leaders' training instruction, democratic behaviors, and social support were positive predictors of GI-T and ATG-T. These findings extend previous studies by Jowett and Chaundy using regression analyses, showing that individual perceptions of training instruction positively influence social cohesion and task cohesion (Jowett & Chaundy, 2004). In this regard, Chaw and Bruce (1999), Ramzaninezhad

and Keshtan (2009) and Leo et al. (2013) with football players, reported a significant positive relationship between training and instruction, social support, democratic behavior, and positive feedback leadership styles, and task cohesion and social cohesion.

However, our results were contrary to the findings of Westre and Weiss (1991) and Shields et al. (1997), which indicated that leadership behaviors had the strongest relationship with the task dimensions of cohesion. They suggested that task cohesion more closely relates to leadership behaviors than social cohesion, because coaches of competitive teams tend to be more focused on task-related issues. Peace and Kozub (1994), in research on girls' high school basketball teams, showed that there is a positive and significant relationship between coaches' leadership styles and task cohesion, but there is no significant relationship between leadership styles and social cohesion.

Similar results to these previous studies can be seen at the team level in our results. Intra-team differences in leaders' training instruction were significant and positive predictors of GI-T. Similarly, teams with higher scores for leaders' training instruction and social support also had higher scores on ATG-T; also, the rate of decline in ATG-T over time was slower in teams with higher social support. In contrast, any intra-team differences in leaders' styles were significant and positive predictors of social cohesion. This is partially supported by Shields et al. (1997) and Westre and Weiss (1991) at the inter-individual level, as they suggested that training instruction, social support, positive feedback, and democratic behavior are the leadership behaviors that foster high task cohesion.

Unexpectedly, teams with higher scores for perceptions of leaders' autocratic behaviors at the beginning of the study had higher GI-T scores and, for these teams, the decline in GI-T was smaller over time. Furthermore, teams with high levels of autocratic leadership behaviors had higher ATG-T scores and showed a smaller decline in this aspect of cohesion over time. These results contrast with those previously obtained in other studies (Gardner et al., 1996; Leo et al., 2013; Ramzaninezhad & Keshtan, 2009), which discovered a negative relationship between autocratic leadership and task cohesion. This may be due to the fact that, at a high performance level, a coach who exhibits autocratic leadership in difficult situations may improve group unity, but when the coach-athlete relationship is not good, that unity may turn against the coach. Another possible reason is that some players or teams might feel more comfortable if the coach makes all the decisions and takes all the responsibility. This finding can be corroborated by the lack of association between the positive feedback leadership and the changes in the levels of cohesion in any of the levels of analysis. Accordingly, the players does not seem to need continuous positive reinforcement in a high performance context. These results partially support hypothesis 2, because higher mean scores

for training and instruction, social support and democratic behavior were related to cohesion, but coaches' autocratic behaviors and positive feedback were not associated with group cohesion.

To corroborate hypothesis 3, we examined the predictive effects of the perceptions of leadership behaviors on collective efficacy. Collective efficacy was positively predicted by leaders' social support at the intra-individual level. Thus, the more personally supportive a coach is perceived to be by their players, the higher the collective efficacy levels of that group are likely to be (Hampson & Jowett, 2014; Hoigaard et al., 2015). That is, changes in social support are associated with changes in collective efficacy. These results partially support hypothesis 3. We expected an association among changes related with another types of leadership (such as, training instruction, positive feedback, democratic behaviors or positive feedback) with collective efficacy, because other authors have found a relationship between these variables (Hoigaard et al., 2015; Ronayne, 2004).

Regarding hypothesis 4, at inter-individual differences, leaders' training instruction and democratic behaviors predicted collective efficacy. These predictions are consistent with the results found by Keshtan, Ramzaninezhad, Kordshooli, and Panahi, (2010) and Ronayne (2004), who argued that leaders' training instruction, social support, democratic behaviors, and positive feedback were associated with collective efficacy. Thus, these results support a part of the hypotheses 4 and add credence to theoretical assumptions related to the importance of coaches' behaviors to improve collective efficacy (Hampson & Jowett, 2014; Hoigaard et al., 2015).

Lastly, we found one unexpected result. Autocratic leadership was also a significant predictor of collective efficacy, but we can see that the prediction values were low. As mentioned above, a coach in difficult situations with an autocratic leadership style, exhibiting safety and efficacy, passing on clear concepts, and imposing all his ideas on the players, can improve confidence within the group. In contrast, Keshtan et al. (2010) and Ronayne (2004) reported that autocratic leadership tended to reduce confidence in teams' abilities when the end of the season approached. In this sense, these results reject the second part of hypothesis 4, and further works are needed to explore the potential reasons for such variations.

Conclusions, limitations and future research directions

Taken together, the results indicate that perceptions of leadership behaviors in semi-professional football players can predict variations in group cohesion and collective efficacy within players, between players,

and across teams. One of the interests of multilevel research is to ascertain whether relationships among constructs can be generalized across levels (González-Romá,& Hernández, 2017). Furthermore, this technique has been shown to reduce bias in parameter estimates when regressing a group-level outcome on aggregated scores of a variable measured at the individual-level. Traditional multiple regression techniques treat the units of analysis as independent observations (Ntoumanis, Mouratidis, Ng, & Viladrich, 2015). One consequence of failing to recognise hierarchical structures is that standard errors of regression coefficients will be underestimated, leading to an overstatement of statistical significance (Hox et al., 2017).

Our results corroborate that the relationships are established in the different levels of analysis. Thus, one practical implications that can be drawn is that the way a coach exerts his leadership over his team can optimize group functioning because he can promote greater individual and group perception of cohesion and confidence in his team. Furthermore, developing coach's leadership intervention programs may be improve the individual perception of the players on this variable, as well as the group's perception of this variable, since the players are nested in groups. Furthermore, the association between the coach's leadership and collective cohesion and effectiveness can become stronger at both levels.

In relation to the theoretical implications that can be drawn for the results, it can be seen that the type of leadership used in each situation not only affects the satisfaction and performance of a team (Ronayne, 2004), as shown in the MLM (Chelladurai, 1993), but also group processes such as cohesion and collective efficacy, which have often been associated with better group functioning (Bandura & Kavussanu, 2018; Carron et al., 2002; Heuzé et al., 2006).

A limitation of our study was that the findings, although longitudinal, were correlational, and no causal inferences can be drawn about the relationships between leadership styles and the dimensions of group cohesion and collective efficacy. Moreover, it should be noted that because ATG-S and democratic leadership at the first measurement wave showed low reliability, the results pertaining to these variables should be viewed with caution. However, our findings are in line with the theoretical predictions about the causal impact of diverse leadership behaviors on these outcome variables (Bandura & Kavussanu, 2018; Hampson & Jowett, 2014; Hoigaard et al., 2015; Jowett & Chaundy, 2004; Leo et al., 2014; Ronayne, 2004).

Future research can build upon this study by incorporating measures of coaching leadership behaviors as provided by coaches, and examining variations between athletes' perceptions and coaches' reports of the leadership behaviors they exhibit.

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