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Abstract

Objectives: To better understand the role sports club coaches can play in health promotion (HP), as well as factors supporting this task, this study compared coaches' and players' perception of coaches' HP activities and tested whether coaches' basic need satisfaction predicted coaches' HP activities mediated by self-determined motivation to coach.

Design: A cross-sectional design was employed. Multivariate analyses were used to compare coaches' and players perceptions of HP, while structural equation modelling was used to test the model.

Setting: Community football clubs in the south east of France.

Method: A sample of 101 coaches and 404 players from 18 soccer clubs completed a questionnaire assessing HP activities' perceptions. Coaches also completed scales on basic need satisfaction and self-determined motivation.

Results: Similar patterns were found for coaches and players' answers, with only a few differences, especially in the *Respect for Oneself and Others* dimension. Moreover, basic need satisfaction predicted *Respect for Oneself and Others* through self-determined motivation, while self-determined motivation was related to a *Healthy Lifestyle*, but basic need satisfaction and self-determined motivation were not linked to *Substance Use*.

Conclusion: Results highlight few differences between coaches' and players' perceptions of coaches' HP activities. Coaches' HP activities are sparse, but seem to be perceived by their players. Self-determined coaches were more likely to promote a *Healthy Lifestyle* and *Respect for Oneself and Others*. The lack of relationship between motivational variables and *Substance Use* could potentially reflect the complexity of drug and alcohol prevention in sports clubs.

Keywords

Coaches, France, health promotion, players, self-determination theory, sports clubs

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Introduction

An extensive body of literature highlights the important role that coaches play with respect to sports club participants' affective, cognitive and behavioural behaviours (Mageau and Vallerand, 2003), leading in some cases to improved social, mental and physical health (Eime et al., 2013), but in other circumstances to injuries (Emery, 2003) or low self-esteem (Langan et al., 2013). This literature has focused on coach–athlete interactions, coaches' leadership styles and coaching efficacy (Appleton et al., 2016). Much less is known about how coaches can encourage athletes' healthy behaviours (e.g. healthy eating, drug use, fair-play, hygiene). The challenge for sports coaches regarding health promotion (HP; i.e. the process of enabling people to increase control over, and to improve, their health) lies in making 'healthy choices, easier choices' (Casey et al., 2012) through the educational nature of sports club participation (Kokko et al., 2014) while optimising players' performance and development, which remains coaches' core business (Kokko et al., 2014).

Coaches' achievements regarding HP activities have been reported in only two studies (Kokko et al., 2015b; Van Hoya et al., 2016b). Van Hoya et al. (2016b) explored the reported health benefits of coaches' HP activities. Results showed that these activities were related to greater enjoyment and fewer drop out intentions and higher perceived quality of life and self-esteem in daily life (Van Hoya et al., 2016b) among French football players. Kokko et al. (2015b) tried to clarify the extent to which Finnish sport coaches take HP into account and their players' perceptions of this, revealing that coaches had significant higher HP activities scores when compared to players' perceptions. Kokko et al. (2015b) recommended that future studies should undertake cross-cultural comparisons to generalise the findings and to explore key variables influencing coaches' HP activities.

The literature has depicted a discrepancy between coaches' perceptions of the importance of promoting health, their commitment to HP and the HP activities they delivered. In other words, they recognised HP as important (Van Hoya et al., 2015) and as necessary in sport clubs (Van Hoya et al., 2015), but did not greatly invest their time in HP activities (Kokko et al., 2015b; Van Hoya et al., 2015). Previously published research has identified a number of factors explaining this low activity rate, such as the voluntary nature of grassroots coaches' work (Casey et al., 2012), their lack of know-how (Kokko et al., 2015a; Meganck et al., 2015), the unclear link between HP activities and sports performance, the support given by club officials for competition rather than health behaviour (Kokko et al., 2011; Van et al., 2016a) and the perception that sports participation automatically promotes health (Van et al., 2016a). These barriers have been mostly explored in a qualitative way, without the testing of an explanatory model.

A literature review on injury prevention has demonstrated the scarce use of theory or models in research in sport clubs (11% of studies), encouraging the use of multidisciplinary approach (McGlashan and Finch, 2010) by linking sports psychology and HP, for example. To the best of our knowledge, only one study has investigated the relationship between coaches' personal factors and HP in a sport clubs setting (Van Hoya et al., 2015). This work revealed a link between coaches' perceptions of club's HP activities and self-determined motivation (consisting of intrinsic motivation – i.e. doing something for its inherent appeal – and identified regulation – i.e. doing something because the benefits are valued; Deci and Ryan, 2012), but not for controlled motivation (i.e. doing something for external or internal pressure). Based on the theoretical tenets of self-determination theory (SDT; Deci and Ryan, 2012), we postulate that coaches training their players with a higher sense of volition (i.e. autonomous motivation) will also be likely to dedicate more personal and psychological resources in their coaching (Mageau and Vallerand, 2003) and in HP activities, as this could potentially help them to overcome their lack of know-how (Kokko et al., 2015a; Meganck et al., 2015) and voluntary nature of involvement (Casey et al., 2012). On the contrary, sports

participants' self-determined motivation to practise has been linked to more moral attitude (Hodge and Lonsdale, 2011), while controlled motivation has been positively related to performance enhancing drugs attitude and susceptibility (Hodge et al., 2013). Similarly, we could postulate that a high self-determined motivation to coach is linked to higher HP activities (e.g. prevention of Substance Use and the promotion of a Healthy Lifestyle).

To complete the picture, SDT postulates that self-determined motivation depends upon the social context, presented as three basic psychological needs that have to be fulfilled in order to develop optimally: autonomy, competence and relatedness (Deci and Ryan, 2012). Autonomy refers to behaviour that is regulated and endorsed by the self, i.e. the individual experiences a sense of volition, freedom and choice with regard to his or her actions (Deci and Ryan, 2012). The need for competence refers to the feeling of mastery that occurs when individuals perceive, they interact with their environment in a competent and effective manner (Deci and Ryan, 2012). The need for relatedness concerns an individual's desire to be integrated within a social context (Deci and Ryan, 2012).

Previous work has also linked basic need satisfaction to coaches' behaviour, such as positive motivational climate (Rocchi et al., 2013; Stebbings et al., 2012), as well as to volunteering, hours of work and psychological engagement in work (Gagné, 2003). Based on these results, we postulate that basic need satisfaction will enhance coaches' self-determined motivation, allowing them to dedicate more personal and psychological resources to paying attention to others (Gagné, 2003), making coaches more likely to engage in HP activities.

To enhance understanding of coaches' HP activities and to explore the variables influencing them, the present work aims to (1) compare coaches' and players' perceptions of coaches' HP activities and (2) through structural equation modelling, test a model in which coaches' basic need satisfaction predicts coaches' HP activities mediated by self-determined motivation to coach.

Methods

Participants and procedure

A total of 18 football clubs from the south east of France were selected at opportunity to participate in this study. Sixteen clubs (89%) participated in the data collection process, which required the participation of at least five 8- to 14-year-old players and three grassroots youth coaches. In total, 101 coaches (95 men, 6 women) with a mean age of 33.44 years (standard deviation [*SD*] = 13.42) and 404 players (393 boys, 11 girls) with a mean age of 11.72 years (*SD* = 1.6), playing football at a local or regional level for a mean of 3.76 years (*SD* = 2.64) and an average of 4.50 hours (including training and games; *SD* = 1.15) per week, completed the questionnaires before or after a training. The gender imbalance in our sample is representative of the French football player population, which is only 5% is women. Data were collected at the end of the 2011–2012 season as part of the larger PAPA Project (www.papaproject.org). Consent was sought from each participant and his or her parents or close relatives before inclusion. Players answered the Coach Health Promoting Activities Scale (CHPAS; Van Hoye et al., 2016b) only, while coaches completed all the measures (CHPAS, SiMS and basic need satisfaction scales). The study was approved by the regional soccer league federation and the Grenoble Alpes University Ethics Committee.

Measures

The CHPAS (Van et al., 2016b) has been used to capture coaches' and players' perceptions of coaches' HP activities. The measure comprises three topics (see Table 1 for the items): *Substance Use, Respect for Oneself and Others* and *Healthy Lifestyle*. The stem of each item asked players

and coaches to rate coaches' activities (i.e. 'To what extent, in your opinion, did you/your coach emphasised HP topics during the on-going season?') on a 5-point scale ranging from 1 (does not describe the coach/my activities at all) to 5 (describes the coach/my activities very well). Global and sub-dimension scores were calculated using the mean of related items. A high score represented a coach's high involvement for the item or the sub-dimension. The scale has been validated on a similar player sample (Van Hove et al., 2016b). Reliability analyses on coaches' and player's data revealed that the CHPAS had good internal consistency for the global score and for each sub-dimension (see Table 1).

A questionnaire measuring four types of self-determined motivation – intrinsic (four items; e.g. because it is exciting), identified (four items; e.g. because it brings me things that I value), introjected (four items; e.g. because it would be bad if I did not) and external motivation (four items; e.g. because I am forced to do it) – was adapted from the Situational Motivational Scale (SiMS; Guay et al., 2000), which had previously been used to measure contextual self-determined motivation in coaching practice among physical education teachers (Taylor and Ntoumanis, 2007). Participants provided Likert scale responses ranging from 1 (not true at all) to 7 (very true). Reliability analyses revealed a high level of internal consistency for intrinsic motivation ($\alpha = .78$) and identified regulation ($\alpha = .66$), but not for introjected ($\alpha = .53$) and external motivation ($\alpha = .63$). Therefore, only the scales measuring self-determined motivation (intrinsic and identified regulations) were used in the analysis. Each subscale score was calculated using the mean of the four items.

Three previously validated scales (Standage et al., 2005; Intrinsic Motivation Inventory, McAuley et al., 1989; Echelle du Sentiment d'Appartenance Sociale, Richer and Vallerand, 1998) at players level were used to develop a questionnaire to capture coaches' basic need satisfaction: autonomy (four items; e.g. It was my choice to coach this team; $\alpha = .71$), competence (four items; e.g. I thought I did a good job coaching this team; $\alpha = .78$) and relatedness (four items; e.g. I felt understood; $\alpha = .66$).

Data analysis

After a preliminary screening of the data, means and *SDs* were calculated. Differences between each dimension of the CHPAS in both samples were tested using a repeated measure analysis of variance (ANOVA). As the intra-team variability was low (3% for the global HP score, 2% for Substance Use, 4.2% for Healthy Lifestyle and 11% for Respect for Oneself and Others), we did not use multilevel analysis, but rather used multivariate analyses of variance (MANOVAs) to compare players' and coaches' perceptions. The model predicting coaches' HP activities was analysed via structural equation modeling using AMOS 23. Multiple fit indices were calculated to indicate the degree of model fit, including the relative chi-square (the chi-square fit index divided by the degrees of freedom), the Tucker–Lewis Index (TLI), Comparative Fit Index (CFI) and the Robust Root Mean Square Error of Approximation (RMSEA). Excellent fit of the hypothesised model to the data is indicated when the TLI and CFI values exceed .95, when the RMSEA is lower than .06 (Kline, 2015) and when the relative chi-square is lower than 3. To calculate indirect effects, bootstrapping analyses were performed. Previous research has shown this approach to be superior to alternative tests with respect to Type 1 error rates and power (Preacher and Hayes, 2008). Bootstrap-generated 95% bias-corrected confidence intervals (CIs) were constructed for 10,000 samples on the hypothesised model (Preacher and Hayes, 2008). Where the bootstrap CI does not cross zero, the indirect effect is deemed to be significant (Shrout and Bolger, 2002).

Results

A verification of assumptions for multivariate analysis showed that the conditions of normality (skewness ranging from -0.96 to 0.67 and kurtosis ranging from -0.75 to 1.19), linearity, homogeneity of variance, homoscedasticity and independence were all met. The data set had less than 5% of missing data (from 0.20% to 3.90% of missing data depending on the items). The factorial structure of the CHPAS was tested to ensure the validity of the questionnaire among coaches sample. Confirmatory factorial analysis for the coaches' sample revealed very good fit of the data to the model after removing two items from the Healthy Lifestyle scale: $\chi^2(24) = 31.11$, relative $\chi^2 = 1.29$, $p > .05$; TLI = .98; CFI = .98; RMSEA = .05 (CI = 0.00 to 0.10).

All the descriptive and univariate test results are presented in Table 1. An ANOVA with one within-subject factor (different sub-dimension of the CHPAS representing HP behaviours) revealed a significant main effect for players, $F(2, 406) = 22.09$, $p < .001$, $\eta^2 = .52$, and coaches, $F(2, 104) = 119.50$, $p < .001$, $\eta^2 = .70$. Post hoc Bonferroni tests indicated significant differences between all dimensions ($p < .001$) for both players and coaches, because they acknowledged *Respect for Oneself and Others* as the highest rated above *Healthy Lifestyle* and *Substance Use*.

Comparing players' and coaches' perceptions, no difference was found for the global score ($p > .05$). In average, players' and coaches of the coach scored 3.38 ($SD = 0.77$) and 3.51 ($SD = 0.67$), respectively, on global perceptions of the HP activities. A first MANOVA with type of respondent (player versus coach) as the independent variable and HP activities sub-dimensions as dependent variables indicated a significant difference in variables according to the type of respondent, Wilks' $\lambda = .96$, $F(3, 510) = 6.93$, $p < .001$, $\eta^2 = .04$, where only the Respect for Oneself and Others dimension a showed significant difference between players and coaches ($p < .001$). A second MANOVA with players versus coaches as the independent variable and HP activity items as dependent variables indicated a significant difference in the variables, Wilks' $\lambda = .94$, $F(11, 449) = 2.83$, $p < .01$, $\eta^2 = .07$. Only three items showed significant differences here: Playing Fair Even When Loosing, Respecting Others and Need to Control Aggressiveness While Being on a Sports Field, where coaches rated their activities higher with regard to player's perceptions (see Table 1 for details).

To explore more deeply the antecedents of coaches' HP activities, we considered only coaches' variables in our explanatory model, regardless of players' perceptions. The number of indicators in the model was reduced where applicable to maintain an acceptable ratio of participants per estimated parameter (Kline, 2015). We postulated that coaches' basic need satisfaction (represented as one latent variable with the three subscales used as observed variable) would predict their self-determined motivation (latent variable based on intrinsic and identified subscales scores) and coaches' HP activities, represented by three latent variables (three dimensions to their corresponding items as observed variable; see Figure 1). The model was tested using the robust maximum likelihood estimation method and demonstrated an excellent fit with the data: $\chi^2(61) = 73.07$, relative $\chi^2 = 1.20$, $p > .05$; TLI = .97; CFI = .98; RMSEA = .04 (CI = 0.00 to 0.08). Coaches reporting higher global level basic need satisfaction had higher self-determined motivation and perceived they are more using HP activities focused on a Healthy Lifestyle and Respect for Oneself and Others, but not on Substance Use. Basic need satisfaction accounted for 14% of self-determined motivation; in turn, these variables explained 4% and 18% of Healthy Lifestyle and of Respect for Oneself and Others, respectively. Through self-determination motivation, basic psychological need predicted Respect for Oneself and Others ($\beta = .09$, $p < .01$; 95% CI = 0.02 to 0.29), but not Healthy Lifestyle ($\beta = .09$, $p > .05$; 95% CI = -0.01 to 0.31).

Table 1. Mean, internal consistency and confirmatory factorial analysis results of the Coach Health Promoting Activity Scale.

	Coaches		Players		p value	Mean difference
	M	SD	M	SD		
Global scale ($\alpha = .84/.82$)^a	3.51	0.67	3.38	0.77	>.05	0.13
Substance Use ($\alpha = .92/.87$)^a	2.29	1.33	2.44	0.77	>.05	-0.15
1. Hazard of doping	2.24	1.41	2.35	1.49	>.05	-0.11
2. Hazard of smoking	2.49	1.42	2.41	1.59	>.05	0.08
3. Hazard of alcohol drinking	2.32	1.42	2.43	1.60	>.05	-0.11
Respect for Oneself and Others ($\alpha = .66/.73$)^a	4.31	0.52	3.96	0.83	<.001	0.35
4. Warming up before an effort and/or the stretching up after an effort to avoid injuries	4.08	0.91	3.99	1.05	>.05	0.09
5. Need to control his aggressiveness, while being on a sport field	4.03	0.83	3.63	1.23	<.01	0.40
6. Playing fair even when loosing	4.47	0.58	4.09	1.05	<.01	0.38
7. Respecting others (partners, opponents, referees)	4.59	0.60	4.19	1.06	<.001	0.40
Healthy Lifestyle ($\alpha = .70/.80$)^a	3.60	0.85	3.53	0.96	>.05	0.07
8. Sleeping well and recovering after an important effort	3.42	1.03	3.50	1.30	>.05	-0.08
9. Moving and doing sport to be healthy, instead of staying behind a screen (TV, computer, video game)	3.65	1.04	3.66	1.25	>.05	-0.01
10. Washing oneself (take a shower) after training or a game	3.72	1.13	3.54	1.38	>.05	0.18
11. Healthy eating and drinking (not too fat, not to sweet, not to savoury)	3.53	1.13	3.52	1.34	>.05	0.01

^aCronbach's alphas are presented for coaches and players, respectively. Bold values represents dimensions of the scale.

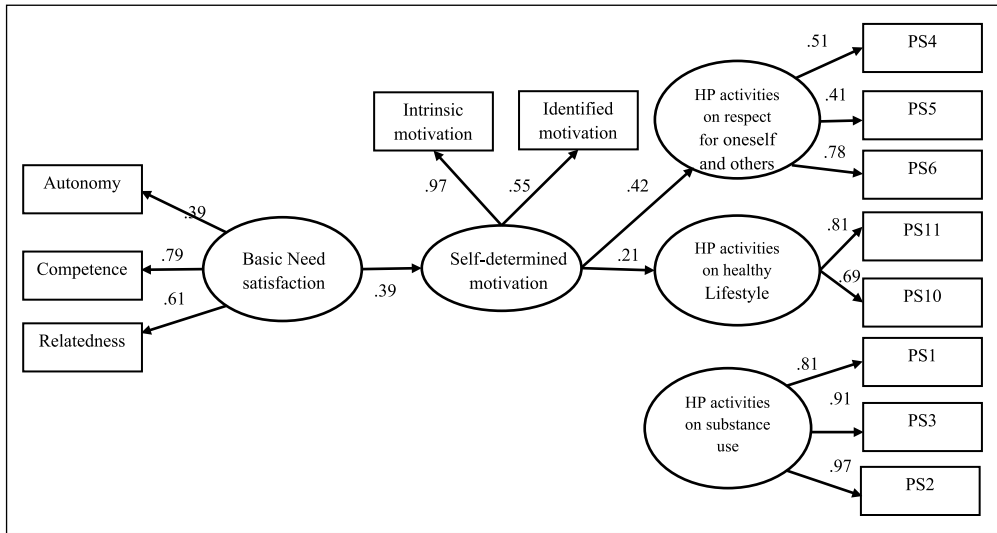


Figure 1. Model of motivational antecedents of coaches' HP activities.

All regression path coefficients are standardised and significant. For clarity of presentation, we omit the correlation of error terms between Healthy Lifestyle and Substance Use ($r = .47$) and between Healthy Lifestyle and Respect for Oneself and Others ($r = .39$).

Discussion

To deepen an understanding of the antecedents of coaches' HP activities, this study aimed at comparing coaches' and players' perception and testing a model in which basic need satisfaction predicts coaches' HP activities mediated by self-determined motivation.

Coaches' and players' perceptions of HP activities in the present French study are similar to those reported in previous Finnish work (Kokko et al., 2015b), where *Respect for Oneself and Others* was invested in by coaches, a *Healthy Lifestyle* was less promoted and *Substance Use* even less (Kokko et al., 2015b).

In general, coaches and players had the same perceptions of coaches' HP activities, except for the *Respect for Oneself and Others* dimension, and specifically about respecting others, playing fair while losing and the player's ability to control of their aggressiveness. For these behaviours, coaches had higher scores on their activities in comparison to players' perceptions. A media campaign and specific support from club officials on this topic, as well as financial penalties (e.g. paying a fine) to clubs for unfair and aggressive behaviour (Van Hoye et al., 2015), could pressure coaches to answer more positively on this dimension, than on the other.

Despite a similar pattern of results between Finland and France (i.e. the same items rated high or low; Van Hoye et al., 2015), the results contrast for the comparison of coaches' and players' answers. With regard to a previous Finnish publication (Kokko et al., 2015b), a large amount of univariate differences were found in Finland, the present work showed this is not the case in France. Interestingly, it seems that coaches' perceptions of their HP activities do not differ much between France and Finland, but French players' perceptions of coaches' HP activities are higher, leading to a fewer significant differences in France. We could postulate that the difference is due to the calculation of the scores, as they were dichotomised in Finland, or to the sample, where Finnish data included different sports and older youth (i.e. 14–16 years old).

The second aim of the study was to test a relationship between coaches' basic need satisfaction and coaches' HP activities mediated through self-determined motivation. As a first step in developing and testing this model, we found that self-determined motivation was a significant positive predictor of *Respect for Oneself and Others* and *Healthy Lifestyle*, but not of *Substance Use*. In other words, coaches training for their pleasure and identifying the benefits of doing so are more likely to foster these two types of HP activities. These results confirm our hypothesis that basic need satisfaction and self-determined motivation increase the amount of personal and psychological resources of coaches dedicated to their practice and to HP activities. As players' self-determined motivation is linked to healthier behaviours, we could also postulate that this relationship exists at coach level. The dynamics surrounding the *Substance Use* dimension seems to be complex, as a previous study has shown that the prevention of *Substance Use* could decrease enjoyment in sport (Kokko et al., 2015b). The lack of relationship between motivational variables and *Substance Use* in this study could potentially reflect the complexity of dealing with drug and alcohol prevention in sport clubs. Previous work has shown that coaches in sport often indicate they should work on these issues, but need special training on the topic (King et al., 2010). In other words, they may have the self-determined motivation to contribute to these HP activities, but do not do so because they do not know what to do.

Furthermore, the results open up new perspectives alongside previous work considering principally a lack of knowledge or competencies (Kokko et al., 2015b) among coaches, as the present work has shown that psychological and social variables could also explain coaches' commitment towards HP. The full mediation analysis illustrates that one way in which to support coaches' HP regarding *Respect for Oneself and Others* and coaches' self-determined motivation, leading to higher *Healthy Lifestyle*, may be to strengthen the social context by supporting their basic psychological needs (e.g. giving autonomy to coaches, supporting their coaching competence and encouraging positive relationships inside the club).

Limitations

Certain limitations need to be taken into account. This study was cross-sectional in nature; therefore, longitudinal and experimental designs are warranted to clarify the direction of the process investigated. Data were collected using self-report and are therefore subject to social desirability bias. Some HP activities may not be perceived by players or coaches as such, for example, a coach could provide free water or fill in flask in training without thinking this could be considered as HP activity. Our sample included only one sport, mostly practised by boys and coached by men. Moreover, our players were quite young (8–14 years old). Replication of the findings in different populations is needed to enlarge our understanding of coaches' HP activities. Future studies should address the contextual and personal antecedents of coaches' HP activities, such as a club's overall approach to HP, a club's climate, parent pressure and coaches' well-being and autonomous orientation.

Conclusion

This study aimed to compare French coaches' and players' perceptions of the coaches' HP activities and explore motivational antecedents of coaches' HP activities. Results highlight only a few differences between coaches and players perceptions, meaning that the few HP activities carried out by coaches were perceived as such by players, except for the *Respect for Oneself and Others* dimension. Moreover, basic need satisfaction predicted *Respect for Oneself and Others* through self-determined motivation, while self-determined motivation predicted *Healthy Lifestyle*, but none were linked to *Substance Use*. These results show the importance of fostering self-determined

motivation of coaches to support them in promoting health. The lack of relationship between motivational antecedents and Substance Use could potentially reflect the complexity of tackling drug and alcohol prevention in sport clubs. More support from club officials to increase coaches' basic need satisfaction (autonomy, competence and relatedness) could lead to an improvement of coaches' motivation which, in turn, may enhance coaches' HP activities.

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