

Sport commitment and adherence: A social-cognitive analysis

Compromiso deportivo y adherencia: Un análisis cognitivo social

Rogério M. Lukwu

Universidade Federal da Paraíba. Brasil

José F. Guzmán Luján

University of Valencia. Spain

Abstract

Statement of problem: This study aimed to analyse the ability of a model based on achievement motivation and self-determination theories to predict adherence to competitive sport. This model incorporated commitment as predictor of adherence. A prospective study was performed with a sample of 302 handball players aged between 14 and 18 years. Structural equation modelling gave support to the model proposed. It was verified the sequence of relationships between perceptions of coach-created mastery climate, psychological needs, self-determined motivation, commitment, and adherence. The major contribution of the study was to confirm a motivational model of adherence based on social-cognitive theories, considering commitment as a predictor of adherence.

Key words: motivation; self-determination; mastery climate; commitment; dropout.

Resumen

Este trabajo analizó la capacidad de un modelo basado en las teorías de la motivación d logro y de la autodeterminación para predecir la adherencia al deporte competitivo. Este modelo incorporó el compromiso como un predictor de la adherencia. La muestra estuvo compuesta por 302 jugadores de balomnano, con edades comprendidas entre los 14 y 18 años. El análisis mediante ecuaciones estructurales (Structural Equation Modelling) confirmó el modelo propuesto. Se verificó la secuencia de relaciones entre la percepción de clima de maestría creado por el entrenador, necesidades psicológicas, motivación autodeterminada, compromiso y adherencia. La principal aportación del estudio fue confirmar un modelo motivacional de la adherencia basado en teorías cognitivo-sociales, considerando el compromiso como un predictor de ésta.

Palabras clave: motivación; autodeterminación; clima de maestría; compromiso; adolescencia; abandono.

Correspondencia/correspondence: José F. Guzmán Luján
Facultad de Ciencias de la Actividad Física y el Deporte.Universidad de Valencia.
C/ Gascó Oliag, nº 3. 46010 – Valencia. Spain
E-mail: Jose.F.Guzman@uv.es

Introduction

Research evidences that in industrialised countries the physical exercise declines as age increases, with a higher drop between 13 and 18 years (Sallis, 2000). The pattern is similar for competitive sport practices, with massive dropout rates in adolescence (Gould, 1987, Russell, Allen & Wilson, 1996; Sallis & Patrick, 1996; Wankel & Mummery, 1996).

A key variable in predicting sport dropout is motivation (Vallerand, Deci & Ryan, 1987; Vallerand & Losier, 1999; Vallerand & Rousseau, 2001) understood as “the hypothetical construct used to describe the internal and/or external forces that produce the initiation, direction, intensity, and persistence of behaviour” (Vallerand & Thill, 1993, p.18; Translation of Sarrazin, Vallerand, Guillet, Pelletier & Cury, 2002). Several research lines have proved able to predict sport dropout (see Gould, 1987; Sarrazin & Guillet, 2001; Weiss & Chaumonton, 1992, for reviews). Self-determination theory (SDT) (Deci & Ryan, 1985 a, b; 2000; Ryan & Deci, 2007) has proved very suitable in understanding motivational processes in physical activity and sport dropout (see Pelletier, Fortier, Vallerand & Brière, 2001; Sarrazin, Boiché, & Pelletier, 2007; Sarrazin et al, 2002; Vallerand & Grouzet, 2001; Vallerand & Rousseau, 2001).

Social determinants of motivation

The SDT theory assumes that social context affects psychological predictors of motivation, coach playing a very important part among them (Vallerand, 1997; Vallerand & Losier, 1999). The coach-created motivational climate may be one of these social characteristic (Ames, 1992a, 1992b). It is defined as the kind of goals the coaches emphasized to be achieved by athletes. It can be task-involving (mastery oriented), when coach promotes athletes to be task oriented, or ego-involving (performance oriented), when he promotes athletes ego orientation. The motivational climate is multidimensional and is comprised of different structures known by the acronymous of TARGET (Ames, 1992a, b; Epstein, 1988) (e.g. tasks, authority, recognition, grouping, evaluation, and time).

In different studies the athlete's perception of task involving climate has been related to: perceived competence (e.g. Boixadós, Cruz, Torregrosa & Valiente, 2004; Reinboth, Duda & Ntoumanis, 2004), and different indicators of perceived relatedness: team cohesion (e.g. Balaguer, Castillo & Duda, 2003), social support provided by coach (e.g. Smith, Fry, Ethington & Li, 2005), and positive peer relationships (e.g. Ommundsen, Roberts, Lemyre & Miller, 2005). In our study we considered perception of coach-created mastery climate as predictor of satisfaction of psychological needs, motivation, commitment and adherence.

The structure of motivation

SDT departs from an intrinsic versus extrinsic conceptualization of motivation. First, people are viewed as typically having multiple motives, both intrinsic and extrinsic, all of which must together be assumed to determine the overall quality of motivation (Ryan & Connell, 1989). Intrinsic motivation (IM) refers to the search for pleasure and satisfaction in the practice of sports, and extrinsic motivation (EM) refers to participating in an activity as a means to fulfil an external goal.

A distinction is made within IM, between IM toward knowledge (interest in progressing in the understanding of the activity), IM toward experiencing stimulation (interest in the activity due to the feelings experienced while performing it) and IM toward accomplishment (interest in to continue gaining skills). Extrinsic motives also may be differentiated in terms of how

autonomous they are, varying from highly volitional, that reflects one's self, to others experienced as external to the self. Four progressively less self-determined types are identified. EM of integrated regulation, is related to the interest in practicing sports to perform behaviour that are fully incorporated into the repertoire of those that satisfy their psychological needs, EM of identified regulation, refers to the interest in practising sports to fulfil goals considered to be relevant by the subject in his/her personal development; EM of introjected regulation, refers to sport practice as a way not to feel guilty for not practising; and lastly EM of external regulation, considers the interest in participating in sports in order to get a prize or a reward.

Finally, SDT also identifies the state of amotivation in which one is literally without motivation for an activity. In a number of research studies A has been associated with very negative experiences and consequences, fallen at the lower end of the continuum of relative self-determination (Pelletier et al., 1995; Vallerand & Bissonette, 1992).

In this study we considered a index of motivation, the self-determination index (SDI), based on the ordered pattern of existing correlations between the seven motivational sub-scales (e.g. Li & Harmer, 1996), and calculated by giving each subscale a specific weight depending on the position held on the self-determination continuum. A number of studies support and validate this composite index (Ryan & Connell, 1989; Sarrazin et al., 2002; Vallerand, 1997; Vallerand & Fortier, 1998; Vallerand & Losier, 1999). It is calculated from the following expression: $((\text{IM toward knowledge} + \text{IM toward accomplishment} + \text{IM toward experiencing stimulation})/3) \times 2 + \text{EM of identified regulation} - ((\text{EM of introjected regulation} + \text{EM of external regulation})/2) - (\text{Amotivation} \times 2)$, following Vallerand recommendations (Vallerand, 2007).

Basic psychological needs and motivation

The SDT model understands that the motivation experienced by the subjects in different contexts results from social factors, and that this relationship is mediated by the satisfaction of the psychological needs to have suitable perceptions of autonomy, competence and relatedness (Connell & Wellborn, 1991; Deci & Ryan, 1985, 1991; Vallerand, 1997). When social factors are perceived as supporting these perceptions, they have a positive impact on motivation, being it high and intrinsic, while if social factors are perceived as drivers of low autonomy, competence and relatedness, they are likely to lead motivation towards extrinsic aspects and, if not achieved, they will lead to amotivation (Vallerand, 1997).

Although each perception of psychological need applies a direct and individualized effect on motivation, Ntoumanis (2005) in order to introduce it in a causal model took them together in a composite variable, and found a strong relationship between this variable and self-determination index ($\beta = .73$).

Motivation and dropout

SDT puts forward a 4-stage causal sequence between motivation determinants and motivation consequences: "Social factors \rightarrow Psychological mediators \rightarrow Motivation types \rightarrow Consequences" (Vallerand, 1997, 2001; Vallerand & Losier, 1999).

Different studies have studied the predictive relationship between motivation and persistence or dropout in the sport context (Sarrazin et al., 2002; Pelletier et al., 2001) and in the exercise and health context (Ryan et al., 1997; Fortier & Grenier, 1999). From the sport context this

model was tested by Pelletier et al. (2001) who used a two-year prospective design to examine the last two stages, analysing the effects of motivation on remaining in competition in adolescent swimmers. Results showed that dropout athletes were characterized by having less self-determined motivation at two stages (10 and 21 months). While IM was associated with the most positive consequences, A was linked with the most negative ones, like waning performance, negative emotions, and dropping out. Nevertheless, relationship between the less self-determined types of motivation and dropout was less clear. EM of introjected regulation was positively related to persistence in a middle term (10 months), and EM of external regulation only was negatively related to persistence in a long term (21 months).

In a subsequent study, Sarrazin et al. (2002) analysed a sport dropout model that combined the 4-stage causal sequence proposed by the HMIEM; perceived motivational climate, taken from the achievement motivation theory (Nicholls, 1989), was considered to be an antecedent of psychological satisfaction via activity. Moreover authors suggested that the intention to do sports, from the theory of planned behaviour by Fishbein and Ajzen (1975), was a mediating variable between motivation and dropout / persistence behaviour. These were the steps of the model: Task/Ego involving climate → Psychological mediators → Motivation types → Intention to practise sports → Dropping out. They followed the competitive practice of 335 female handballers for 21 months. Results from structural equation modelling analyses provided support for the model. The path from behavioural intentions to dropout behaviour was moderate ($\beta = .55$). Comparison of mean scores between persistent players and dropouts showed that the former perceived the motivational climate as being more task-involving, experienced greater satisfaction of their three psychological needs, and reported higher IM and lower A and intentions to drop out.

In this study we considered intention as a part of athlete's commitment. This variable has been considered composed by six dimensions, perceptions of: (1) degree of enjoyment with sport practice, (2) personal investments (3) opportunities of involvement, (4) social restrictions, (5) alternatives to involvement, and (6) social support (Scanlan et al., 1993, 2003).

For us commitment was considered as a bidimensional variable, formed by the athlete's perception of effort in sport and intention of practice in the future. We considered the other variables of commitment (Scanlan et al., 2003) are related with it but not part of it. Some variables are the person's perception of the characteristics of the environment (opportunities of involvement, social restrictions, and alternatives to involvement), and enjoyment is a result of the practice than may affect motivation and commitment.

From this point of view, the aim of this study was to analyze the causal sequence: Task involving climate → Psychological mediators → Motivation types → Sport commitment → Adherence.

Method

Participants

302 competitive handball players, ages between 14 and 18 ($M = 15.6$; $DT = 1.35$), 154 boys and 148 girls freely participate in this study.

Instruments

The variables considered in the study were: perception of coach-created mastery climate, satisfaction of psychological needs, self-determined motivation in sport, sport commitment,

and sport adherence. All of them with the exception of adherence were measured through a 7-point Likert scales, 1 meaning “strongly disagree” and 7 “strongly agree”. Reliability of sub-scales was analyzed with α Cronbach coefficient.

The perceived coach-created mastery climate was measured by a Spanish version of the Biddle et al. (1995) PMCSQ (Perception of Motivational Climate Sport Questionnaire). Reliability of the mastery climate measure was acceptable ($\alpha = .88$).

Satisfaction of psychological needs in sport was measured by the Spanish Scale of Satisfaction of Psychological Needs in Sport (Escala de satisfacción de necesidades psicológicas en el deporte, ESaNPd) developed by Guzmán & Luckwu (2008). Translated to English, some examples of items in each sub-scale are “I can perform my sport with efficacy” (perceived competence), “I feel supported by my coach and team mates” (perceived relatedness), and “I practice and apply effort in sport by my own decision” (perceived autonomy). Reliability of each sub-scale was acceptable: Perceived competence ($\alpha = .83$), relatedness ($\alpha = .86$), and autonomy ($\alpha = .75$). We calculated an index of psychological need satisfaction (PNS), by the mean between the three sub-scales.

Sport motivation was measured using the Spanish version (Guzmán, Carratalá, García Ferriol, & Carratalá, 2006) of the Sport Motivation Scale (Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995). This scale measured 7 motivation types in the self-determination continuum: IM toward knowledge, IM toward accomplishment, IM toward stimulation, EM of identified regulation, EM of introjected regulation, EM of external regulation and A. Reliability of sub-scales was acceptable, α ranging from .69 to .80. We calculate the Self-Determination Index (SDI) with the expression recommended by Vallerand (2007).

Sport commitment was measured by two sub-scales: self-perception of effort and intention of sport practice. An instrument was elaborated specifically to this study with items following the expression: “About my sport I think that....” An example of item to measure effort is “I do all I can when I am practicing”. An example of item to measure intention is “I will practice my sport for a long time”. Reliability of each sub-scale was acceptable: self-perception of effort ($\alpha = .83$), and intention of sport practice ($\alpha = .77$). Both sub-scales were moderately correlated ($r = .46^{**}$). We calculated the sport commitment as the mean of the two of them.

Procedure

A prospective study was conducted over a 12 month-period. In the first stage handball players from different teams were administered the instruments to measure the studied variables. This was done in their training sessions and with their previous consent. 12 months later the researchers phoned the athletes and asked them if they continued practising their competitive sport.

Results

Pattern of relationships between the dependent variables followed the propositions of the social-cognitive theories considered. All of them were positive and moderately correlated, r ranging from .47 to .69.

Table 1. Descriptives and correlations of variables considered in the study

Variables	2	3	4	M	SD
1 Mastery climate	.49**	.47**	.60**	4.21	0.74
2 Satisfaction of psychological needs (SPN)		.53**	.69**	5.46	1.05
3 Self-determination index (SDI)			.54**	5.64	4.03
4 Sport commitment				4.92	0.88

In addition, we performed a multifactorial analysis 2 (dropout or adherence) x 2 (boys or girls), including the variables of the hypothesized model as dependent variables. Introducing gender as independent variable allowed us to control de effects of this variable. Results of the multivariate contrasts test showed significant effects to adherence ($F= 5.22$; $p < .001$; partial $\eta^2= .073$; $1-\beta= .97$) and gender ($F= 10.94$; $p < .001$; partial $\eta^2= .141$; $1-\beta= 1.00$). No significant effects were found to interaction between them.

Results of the inter-subjects effects test indicated effects of adherence on mastery climate ($F= 13.55$; $p < .001$; partial $\eta^2= .048$; $1-\beta= .96$), and sport commitment ($F= 13.62$; $p < .001$; partial $\eta^2= .048$; $1-\beta= .96$). No significant differences were found in satisfaction of psychological needs and self-determined motivation. Persistent athletes had higher perception of coach-created mastery climate ($M = 4.24$; $SD = 0.70$) and sport commitment ($M = 4.97$; $SD = 0.80$) than dropout athletes: mastery climate ($M=3.96$; $SD = 0.90$), sport commitment ($M = 4.50$; $SD = 1.08$).

Analysis of the structural model

The analysis was performed with Amos 7. The model hypothesised that each variable would have an indirect effect on sport commitment, following the sequence of causal relationships proposed in self-determination theory. Nevertheless we considered that each variable would also show a direct effect on sport commitment. The model proposed, with the regression coefficients, is showed in figure 1.

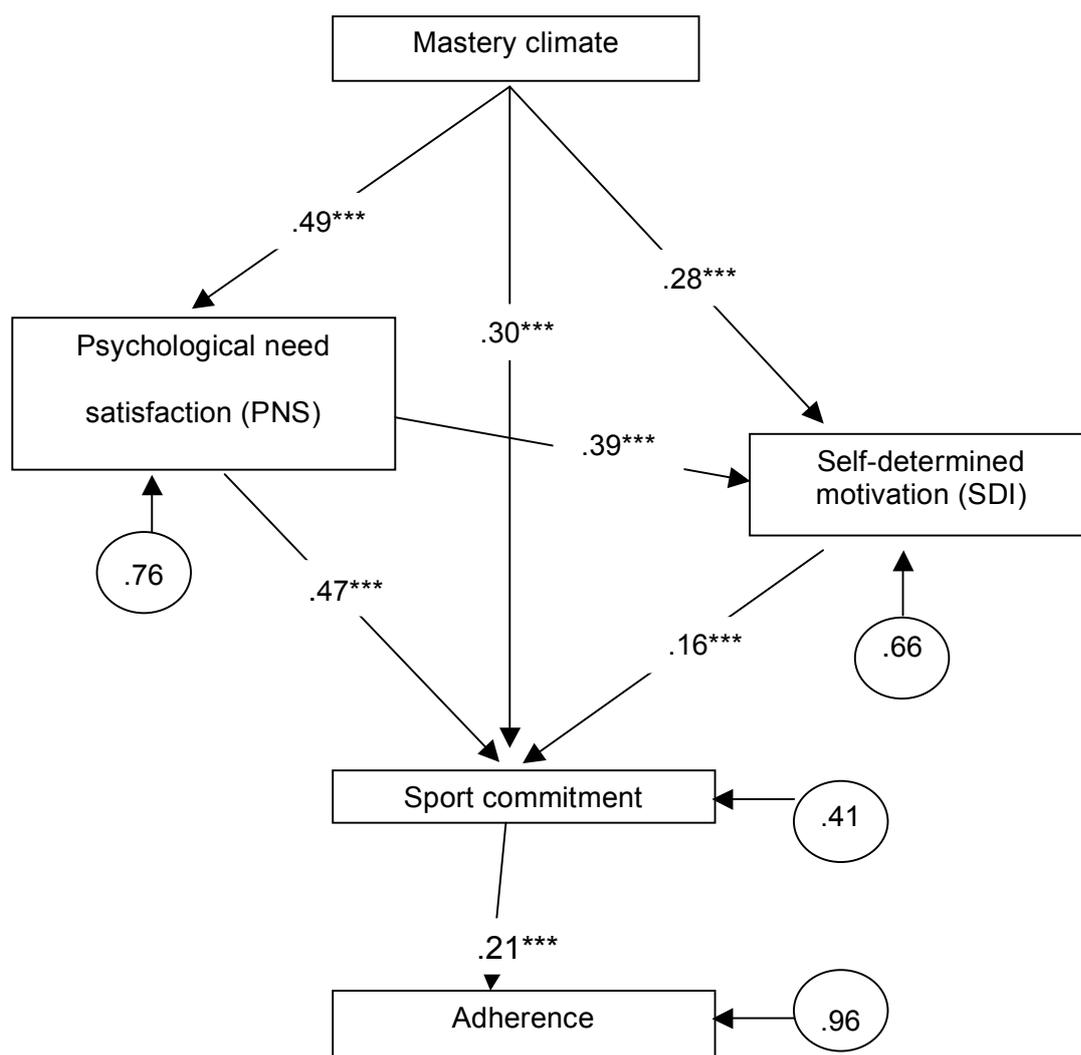


Figure 1. Causal model and regression coefficients (***) $p < .001$)

Results showed that coach-created mastery climate predicted psychological need satisfaction, self-determined motivation and sport commitment. Moreover, satisfaction psychological need satisfaction predicted self-determined motivation and sport commitment. In addition, self-determined motivation predicted sport commitment. Lastly, sport commitment predicted adherence.

The structural model showed a good fit to the data, $\chi^2 / f.d = (5.64, f.d = 3) = 1.88$; $p < .131$, IFI = .99; NFI=.98; CFI= .99; RMSEA= .05 (low = .000; and high = .122).

Discussion

This study showed the adequacy of self-determination and achievement motivation theories to analyze sport adherence because the proposed model was confirmed by the results, showing a good fit to the data.

Results demonstrated that athlete's perception of coach-created mastery was related not only with psychological need satisfaction but also with self-determined motivation and commitment. We consider that with adolescent athletes the coach is a model that with his behaviour and instructions helps them to think they have more competence, freedom in the task, and to learn the most important reasons to practice sport (motivation) and the commitment they should show in sport. We hypothesized that when athletes are adults this effect of coach-created mastery climate on motivation and commitment won't be so strong because the coach is not such an important model. In this case the effects of perception of coach-created mastery climate on motivation and commitment would be only indirect, mediated by the satisfaction of psychological needs. We think that this hypothesis should be investigated in future research.

In addition, psychological need satisfaction predicted self-determined motivation and commitment. These results are in consonance with results founded in other studies in the sport context (Sarrazin et al., 2002). Moreover, our study confirmed that psychological need satisfaction also was directly related with commitment.

Following the model proposed, self-determined motivation was related with sport commitment. Previous studies had found a positive relationship between self-determined motivation and intention of sport practice (e.g. Sarrazin et al., 2002). Nevertheless this study incorporated perception of effort as another variable of sport commitment that could be related with adherence.

The results of the study suggest that our conceptualization of commitment as an intrinsic variable composed by perception of effort and intention of practice may be operative to understand its relationships with other psychological and behavioural variables, as was hypothesized in the study.

Lastly, commitment was related with adherence. The athletes more committed to sport tended to persist in their practice of sport 12 months later. We have to recognize that, although the regression coefficient was significant, the percentage of explained variance was very small, only 4%. This means that with adolescent athletes other variables, as injuries, studies, etc. may affect adherence more than sport commitment. Moreover, we consider that sport commitment could vary fast in function of social changes in sport and studies performance, coach behavior, other interests, etc.

The main contribution of this study is that it validates a model based on self-determination theory that incorporates coach-created motivational climate (taken from achievement motivation theory), to predict sport commitment and adherence to sport. Moreover, this model suggests that in adolescent athletes the perception of coach-created motivational climate is especially relevant to predict commitment because it has indirect and direct effects on it.

Other contribution of the study is that we simplified the definition of commitment, considering only perception of effort and intention of practice. We think that this conceptualization clarified the most important and intrinsic aspects of it, making the variable more operative.

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