

The commitment of young soccer players

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The commitment of young soccer players. The main purpose of this study was to test the Sport Commitment Model in young soccer players. Participants' ($N=437$) age ranged from 14 to 16 years. Based on the sport commitment model proposed by Scanlan and colleagues, 6 scales and 28-items constitute the Sport Commitment Questionnaire (SCQ). Results of this study provide some support for the reliability and validity of the SCQ, using a sample of young soccer players. Reliability analysis provided acceptable internal consistency for four scales: Sport Commitment, Sport Enjoyment, Involvement Alternatives and Social Constraints. Sport Enjoyment ($\beta=.56, p<.001$) and Involvement Alternatives ($\beta=-.40, p<.001$) were the strongest sport commitment predictors. Further studies with a broader age range, different genders, and other sports or competitive levels are required to continue analyzing the sport commitment model.

Compromiso deportivo en futbolistas jóvenes. El principal objetivo de este estudio fue probar el modelo de compromiso deportivo en jóvenes futbolistas. Participaron 437 jugadores de fútbol con edades comprendidas entre los 14 y 16 años. El Cuestionario de Compromiso Deportivo está compuesto de 6 subescalas y 28 ítems y tiene su fundamentación teórica en el modelo de compromiso deportivo propuesto por Scanlan y colaboradores. Los resultados muestran un grado de fiabilidad y validez adecuadas. Los análisis de fiabilidad muestran consistencia interna para cuatro de las subescalas: diversión deportiva, compromiso deportivo, alternativas a la implicación y coacciones sociales. La diversión deportiva ($\beta=.56, p<.001$) y las alternativas a la implicación ($\beta=-.40, p<.001$) son los predictores más potentes del compromiso. Son necesarios más estudios con distintos géneros, rangos de edad, deportes y niveles competitivos para continuar el estudio del modelo de compromiso deportivo.

Commitment is a psychological construct commonly used in sport to refer to the motivation to continue practicing a sport. With respect to young athletes, participation and engagement are the positive aspects of sport withdrawal or sport attrition (Weiss & Petlichkoff, 1989). Different studies have summarized motives for sport and physical activity participation (Cecchini, Méndez, & Muñiz, 2002; Cervelló, Hutzler, Reina, Sanz, & Moreno, 2005; Morales, Hernández-Mendo, & Blanco, 2005) with the intention of finding solutions to avoid sport dropout. This matter is of particular concern to coaches who, in general, do not have the tools to confront and solve this problem (Gould, Feltz, Horn, & Weiss, 1982).

Rusbult's (1980) investment model has been used to explain personal involvement in romantic relationships and provided the initial theoretical framework in which the Sport Commitment Model is based (Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993). In the study of romantic relationships, some researchers have assumed that if partners love each other and feel happy, their relationship is more likely to continue. All things considered, it is easier for a relationship to continue when it feels good than when

it feels bad, but at the same time it may be somewhat simplistic to assume that happiness tells the whole story in explaining persistence of a relationship. As Rusbult, Martz and Agnew (1998) outlined, the reason is that this argument fails to answer two questions: a) why do some relationships persist despite dissatisfaction? and b) why do some satisfactory relationships end? The theoretical Commitment model in which the commitment construct is related to other psychological variables/determinants could answer both of these questions. According to Rusbult's model, commitment has three determinants: satisfaction, alternatives and investments. *Satisfaction level* refers to the positive versus negative affect experienced in a relationship. Quality of *alternatives* refers to the perceived desirability of the best available alternative to a relationship. *Investments* refer to the magnitude and importance of the resources that are attached to a relationship. This model has been effective in predicting commitment to romantic relationships in many studies (Martínez, 2000; Rusbult, 1983; Rusbult & Buunk, 1993) and the model also has been adapted to predict commitment in work settings (Farrell & Rusbult, 1981; Rusbult & Farrell, 1983) and sport settings (Carpenter, Scanlan, Simons, & Lobel, 1993; Scanlan, Rusell, Beals, & Scanlan, 2003; Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993; Weiss, Kimmel, & Smith, 2001).

Following Rusbult's (1980) investment model of commitment, Scanlan, Carpenter et al. (1993), in their Sport Commitment Model hypothesized that the determinants of sport commitment

would encompass the psychological concepts of attraction, alternatives and restraining forces. The attraction variable is represented by *sport enjoyment*. The concept of alternatives was included in the model as *involvement alternatives*. For restraining forces or barriers, Scanlan, Carpenter et al. (1993) developed three constructs that hypothetically affect sport commitment: a) personal investments in the activity (*personal investments*), b) the impact of social norms (*social constraints*), and c) the promise of future experiential opportunities derived only through continued involvement (*involvement opportunities*).

Therefore, the Sport Commitment Model postulates five factors as determinant/antecedents of sport commitment that could be interrelated. However, each determinant is measured separately, predicting its influence on sport commitment independently. Sport enjoyment is defined as «a positive affective response to the sport experience that reflects generalized feelings such as pleasure, liking and fun» (Scanlan, Carpenter et al., 1993, p. 6). Involvement alternatives are defined as «the attractiveness of the most preferred alternative(s) to continued participation in the current endeavour» (Scanlan, Carpenter et al., 1993, p. 7). Personal investments are defined as «personal resources that are put into the activity which cannot be recovered if participation is discontinued» (Scanlan, Carpenter et al., 1993, p. 7). Social Constraints are defined as «social expectations or norms which create feelings of obligation to remain in the activity» (Scanlan, Carpenter et al., 1993, p. 7). Involvement Opportunities are defined as «valued opportunities that are present only through continued involvement» (Scanlan, Carpenter et al., 1993, p. 8). Recently, the authors of the Sport Commitment Model added a new determinant: Social Support, defined as the support and encouragement the athlete perceives that significant others provide for their involvement in sport (Scanlan, Russell, Wilson, & Scanlan, 2003). The sport commitment model postulates that sport commitment is a «psychological construct representing the desire and decision to continue sport participation» (Scanlan, Carpenter et al., 1993, p. 6) and that this construct can be measured with regards to a specific sport (e.g. soccer, swimming), a sports program or sport participation in general.

Considering that sport commitment could be a potential construct to explain and provide guidelines to prevent sport dropout, the purpose of the present study was twofold: a) test of the Sport Commitment Model with young Spanish and Catalan soccer players and b) analyze measurement and structural sport commitment model.

Method

Participants

Participants were 437 soccer players aged between 14 and 16 years ($M= 15,6$; $SD= .49$) who agreed to participate and played for one of the 25 club teams selected from the highest competitive level in their category, and playing in different regions of Catalonia.

Instruments

All participants completed the original 28-item SCQ – *Sport Commitment Questionnaire* (Scanlan, Simons et al., 1993). The SCQ is devoted to measuring all the constructs of the Sport

Commitment Model, which include sport commitment as a dependent variable and each of their determinants. The items are made up of 6 subscales: Sport Commitment has 6 items; Sport Enjoyment has 4 items; Personal Investments have 3 items; Social Constraints have 7 items; Involvement Opportunities and Involvement Alternatives have 4 items each. The answers were given on a 5-point Likert-type scale from strongly disagree (1) to strongly agree (5). «I like playing soccer this season» is an example of a Sport Enjoyment item. We presented items in assertive/statement form instead of question form as presented by the original authors as Carpenter and Coleman (1998) considered that it was easier for the participants to understand.

Procedures

The SCQ items were translated into Spanish and Catalan separately by four bilingual (Catalan and Spanish) researchers with experience of sport and sports psychology; and with a good level of English. Once a consensus had been reached for the translations, we compared them to the original version in English to certify that each item had the same meaning. Data from the present study are the first validation indicators collected about this adapted questionnaire.

We requested the collaboration of 29 clubs to participate in the study. These clubs were selected in consideration of two principal criteria: a) they had Cadet (Under 16) teams playing in one of the three most competitive levels; and b) they were from different geographical areas of Catalonia. Twenty-five clubs agreed to participate in the study, only 4 of requested clubs did not for reasons of compatibility with schedules. The questionnaires were conducted before regular training in a changing room.

Data analysis

Item distributional properties were calculated for each 28 items. We assumed skewness and kurtosis values below 1.0 to be slight non-normality, values between 1.0 and about 2.3 to be moderate non-normality, and values over 2.3 to be severe non-normality (Lei & Lomax, 2005).

Cronbach's Alpha Coefficient was generated for each factor to assess internal consistency (Cronbach, 1951) and we adopted Nunnally's (1978) criterion of $\geq .70$ to represent acceptable reliability in the psychological domain.

Descriptive statistics, Cronbach's Alpha Coefficient and Exploratory Factor Analysis were obtained using the Statistical Package for Social Sciences (SPSS) 12.0 program (SPSS, 2003).

Factor Analysis (CFA) and Structural Equation Modelling (SEM) were conducted using the AMOS 5.0 program (Arbuckle, 2003) and Mplus 3.01 program (Muthén & Muthén, 2003). Parameter estimation was conducted using maximum-likelihood (ML). In order to assess the adequacy of fit we reported several goodness-fit indices based on McDonald and Ho (2002) recommendations. Despite the slight non-normality of our data (see later), Satorra-Bentler χ^2 corrected for non-normality did not differ in first two decimals places from χ^2 without correction. So we report non-corrected fit indices. The cut-off criteria for fit indices proposed by Hu and Bentler (1999), and Browne and Cudeck (1992) were adopted. However, for CFA, these criteria have been shown to be very restrictive (Marsh, Hau, & Wen, 2004; van Prooijen & van der Kloot, 2001). Covariance matrix was analysed.

Results

Item Distributional Properties

As shown in table 1, mean item scores were at the midpoint of the response scale (min value= 2.05; max value= 4.38; *M*= 3.37). Standard deviations fluctuated around 1.00 (min value= .87; max value= 1.37; *M*= 1.09) showing appropriate item variability. These results were very similar to those obtained by Scanlan and Simons et al., 1993. Skewness values ranged from .12 to 1.77 as in the original studies, suggesting a slight or moderate non-normality. With respect to kurtosis, all but three Com 6, Com 2, InvOpps1 of the items had values within the cut of moderate non-normality. Although univariate data does not reflect serious departures in terms of normality, Mardia's coefficient of kurtosis for 28 items (Mardia's estimate= 226.122) and for 21 items (Mardia's estimate= 146.981) showed significant multivariate skewness. That is why we obtained both corrected and non-corrected chi-square goodness of fit indices when using CFA. As we said earlier, the similarity of both analyses was taken as a support for the lack of concern about multivariate normality of SCQ items.

Table 1
Item distributional properties for each 28 items

Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Com1	3.57	1.09	-0.59	-0.09
Com2	4.36	0.88	-1.68	3.10
Com3	3.94	0.95	-0.98	0.87
Com4	4.07	1.02	-1.06	0.64
Com5	3.95	1.20	-1.07	0.21
Com6	4.38	0.87	-1.57	2.44
Enjoy1	3.96	1.02	-0.99	0.53
Enjoy2	3.94	1.10	-0.99	0.25
Enjoy3	3.87	1.14	-0.99	0.27
Enjoy4	3.92	1.08	-1.04	0.55
Altern1	2.26	1.15	0.57	-0.58
Altern2	2.25	1.18	0.56	-0.69
Altern3	2.43	1.32	0.45	-0.99
Altern4	3.19	1.37	-0.21	-1.21
Invest1	3.98	0.97	-1.12	1.26
Invest2	4.10	0.91	-1.07	1.14
Invest3	3.16	1.26	-0.29	-0.89
SocCon1	2.66	1.13	0.15	-0.65
SocCon2	2.05	1.07	0.89	0.25
SocCon3	2.75	1.27	0.17	-0.97
SocCon4	2.32	1.18	0.54	-0.60
SocCon5	2.49	1.29	0.40	-0.97
SocCon6	2.41	1.13	0.31	-0.74
SocCon7	2.12	1.11	0.68	-0.41
InvOpps1	4.38	0.91	-1.77	3.10
InvOpps2	2.61	1.20	0.12	-0.90
InvOpps3	4.20	0.98	-1.37	1.62
InvOpps4	4.09	0.93	-1.28	1.92

Internal Structure of SCQ

First, a Confirmatory Factor Analysis (CFA) was conducted with 28 items and 6 postulate factors. Six latent variables were postulated corresponding to the six scales of the Sport Commitment questionnaire and 28 items loading only on their corresponding latent factor. Orthogonal and correlated factor models provided a poor fit of the data (results for each model respectively: $\chi^2_{(350, N=437)} = 1867.210, p < .001, RMSEA = .099, CFI = .674, RMR = .203, GFI = .747, TLI = .647, NFI = .629$ and $\chi^2_{(335, N=437)} = 1176.811, p < .001, RMSEA = .076, CFI = .819, RMR = .112, GFI = .833$), congruent with results obtained in original studies.

Results indicated that sport commitment ($\alpha = .76$), sport enjoyment ($\alpha = .88$) and social constraints ($\alpha = .80$) were reliable scales. Nevertheless, there were two scales that fell below the .70 criterion: personal investments ($\alpha = .41$) and involvement opportunities ($\alpha = .52$). Involvement Alternatives ($\alpha = .66$) also fail to meet this criterion but the alpha coefficient did exceed a level of .60, which has been identified as an acceptable, if marginal, level of reliability for subscales with a small number of items but with a demonstrated strong underlying factor structure (Carpenter & Scanlan, 1998; Scanlan, Simons et al., 1993; Scanlan, Carpenter et al., 1993; Weiss, Kimmel et al., 2001). Acceptability is also supported by the fact that Spearman-Brown prophecy formula shows adequate estimated reliability coefficients for all subscales provided that they had 20 items. Original studies reported similar results, for reliable scales and for personal investments that also failed to define a factor (Table 2). However, involvement opportunities revealed favourable internal consistency in previous studies, differing to our results.

Exploratory Factor Analysis

Due to the lack of adjustment of CFA models, we opted to achieve more consistent results. Exploratory factor analysis was used to examine the latent factor structure and composition of the SCQ. Principal axis factoring (PAF) with oblimin rotation was used to extract factors. Kaiser-Meyer-Olkin's measure of sampling adequacy as high as 0.85 and Bartlett's sphericity test ($\chi^2_{(184, N=}$

Table 2
Cronbach's Alpha coefficient for each factor compared with results of original studies

Factor	Cronbach's Alpha Coefficient					
	Original studies (Scanlan, Carpenter, et al., 1993; Scanlan, Simons et al., 1993)	26 items (n=140)	27 items (n=178)	19 items (n=178)	28 items (n=437)	Present study Spearman -Brown prophecy for 20 items
Sport commitment		.88	.89	.85	.76	0.91
Sport enjoyment		.90	.95	.94	.88	0.97
Involvement alternatives		.91	.63	-	.66	0.91
Personal investments		.36	.50	.50	.41	0.82
Social constraints		.87	.88	.80	.80	0.92
Involvement opportunities		.83	.80	.81	.52	0.72

$\chi^2_{(437)} = 4910,244, p < .001$) suggested that the initial SCQ item pool was suitable for the application of factor analysis procedures (Dzubian & Shirkey, 1974).

Item loadings of .30 and above were considered interpretable. Results for six and five factors with all 28 items entered into these analyses demonstrated factor interpretability problems with high cross-loading items for 2 or more factors and other non-fulfilled reduction criteria (Kaiser-Guttman eigenvalues > 1, scree plot (Cattell, 1978) stopping rules). Considered together with the poor alpha coefficient for two factors, we decided to drop personal investments and involvement opportunities from further analysis. To determine whether the 21 items retained could be represented by a more parsimonious number of dimensions we specified four factors ($KMO_{21 \text{ items}} = .84$). Covariance and correlation matrices provided similar results. Results indicated that Factor 4 was complex because items loaded more than .30 on non-intended factors. It was not surprising to have items from another construct loading with the sport commitment items because this factor is the dependent measure in the model and previous results also had cross-loading results for this factor (Scanlan, Simons et al., 1993). To determine whether these two factors could be clearly distinguished from one another, the sport commitment and involvement alternatives items were entered into a separate orthogonal factor analysis and a two factor solution was specified. Relatively to four factors structure, despite the correlation between the factors ($r = .66$), these results provided clear evidence for discriminant validity of items. Although 5 items loaded on a non-intended factor, we kept these items because, with the Spanish and Catalan SCQ version being at an early stage, it would have been premature to remove these items. An examination of the rotated pattern matrix presented in table 3 indicates adequate simple structure, strong item loadings on latent SCQ factors and an interpretable solution. The final EFA contained 21 items grouped into 4 factors that gave 47.3% item variance. Factor 1 reflects sport enjoyment, Factor 2 represents social constraints, Factor 3 reflects involvement alternatives and Factor 4 represents sport commitment. Moderate relationships were found between sport enjoyment and both the sport commitment factor ($r = .389$) and involvement alternatives ($r = -.316$).

Test of Sport Commitment Model

Using structural equation modelling (SEM), we conducted a confirmatory regression analysis to examine the Sport Commitment predictors (Scanlan, Carpenter et al., 1993). Two nested models were analysed, the first of them was specified according to original model, the second was a re-specification with all non-significant parameters set equal to zero. As shown in Figure 1, in the structural model, the latent variables sport enjoyment, involvement alternatives and social constraints were considered predictors of sport commitment. In the measurement model, items were constrained to load exclusively on relevant latent SCQ factors, and an item loading was fixed to 1.0 for every factor for identification purposes. Correlational paths were allowed between the predictors, and errors of measurement (uniquenesses) associated with each item (observed variable) were uncorrelated. An examination of the global indices indicated that were very close to the most restrictive recommended cut-off point. The model was deemed acceptable ($\chi^2_{(184, N= 437)} = 597,711, p < .001, RMSEA = .072, CFI = .885, RMR = .092, GFI = .878, TLI =$

$.868, NFI = .843$). Additionally, the two nested models yield non-significant differences of fit ($\chi^2_{(1, 437)} = 0.9, p = 0.66$). The model adequacy was also sustained for non-significant differences between Spanish and Catalan questionnaires that were encountered ($\Delta\chi^2_{(184, N= 437)} = 34,9115, p = .07$). The standardized solution factor loadings indicated that the variables loaded appropriately on their respective factors, except 2 items (item 4, item19) loaded less than .30. The two factors predicted 59% of the variance in the dependent variable. The Sport Enjoyment construct was the most powerful predictor ($\beta = .56, p < .001$), followed by Involvement Alternatives ($\beta = -.40, p < .001$). These predictions agreed with the sport commitment model postulate. The Social Constraints factor did not predict sport commitment but correlated significantly with involvement alternatives ($r = .18$). The correlation coefficients showed a significant ($p < .001$) and negative correlation between sport enjoyment and involvement alternatives ($r = -.25$).

Discussion

Results of this study provide some support for testing the Sport Commitment Model on young soccer players, although there appear to be specification problems with the overall Sport

	Factor			
	1	2	3	4
It1-Enjoy3	0,866	-0,015	0,087	-0,138
It8-Enjoy4	0,737	-0,029	0,048	0,074
It14-Enjoy1	0,890	-0,012	0,016	-0,073
It16-Enjoy2	0,825	-0,011	-0,059	0,018
It2-ScoCon2	0,112	0,491	0,211	0,041
It11-SocCon6	0,055	0,489	0,014	0,037
It20-SocCon1	0,001	0,346	0,281	0,172
It21-SocCon3	-0,053	0,659	-0,048	-0,013
It22-SocCon4	-0,028	0,885	-0,123	-0,186
It23-SocCon5	-0,022	0,869	-0,110	-0,099
It7-SocCon7	-0,082	0,465	0,090	0,050
It9-Altern3	-0,053	0,120	0,621	0,113
It18-Altern1	-0,006	0,009	0,768	0,072
It19-Altern4	-0,021	-0,031	0,193	0,320
It26-Altern2	0,050	0,012	0,769	0,032
It10-Commit4	0,188	0,026	-0,412	0,403
It12-Commit5	0,140	0,034	-0,336	0,422
It28-Commit2	0,160	-0,077	-0,391	0,523
It4-Commit1	0,144	0,175	-0,059	0,235
It6-Commit3	0,424	0,038	-0,178	0,291
It17-Commit6	0,069	0,020	-0,543	0,274
Eigenvalue	4.67	3.04	1.52	0.705
% variance	22.26	14.49	7.23	3.35
Factor correlations				
Sport enjoyment	1.00			
Social constraints	.068	1.00		
Involvement alternatives	.316	.192	1.00	
Sport commitment	.389	.139	-.069	1.00

Commitment model. The internal structure of SCQ identifies four factors as adequate for including the model. Cronbach's Alpha Coefficient for Sport Commitment, Sport Enjoyment, Involvement Alternatives and Social Constraints was adequate, indicating consistent scales in the present study with values similar to those reported in the original validation study of the instrument. The Personal Investments scale has weak internal consistency, as

previous studies results had shown (Scanlan, Carpenter et al., 1993; Scanlan, Simons et al., 1993). When comparing internal reliability coefficients to original studies and the present study we observed similar results, except for the Involvement Opportunities factor. Furthermore, we also verified alpha coefficients slightly lower than the originals consistently occurring for each scale. This result was probably due to the sample specification, which is very

21 items

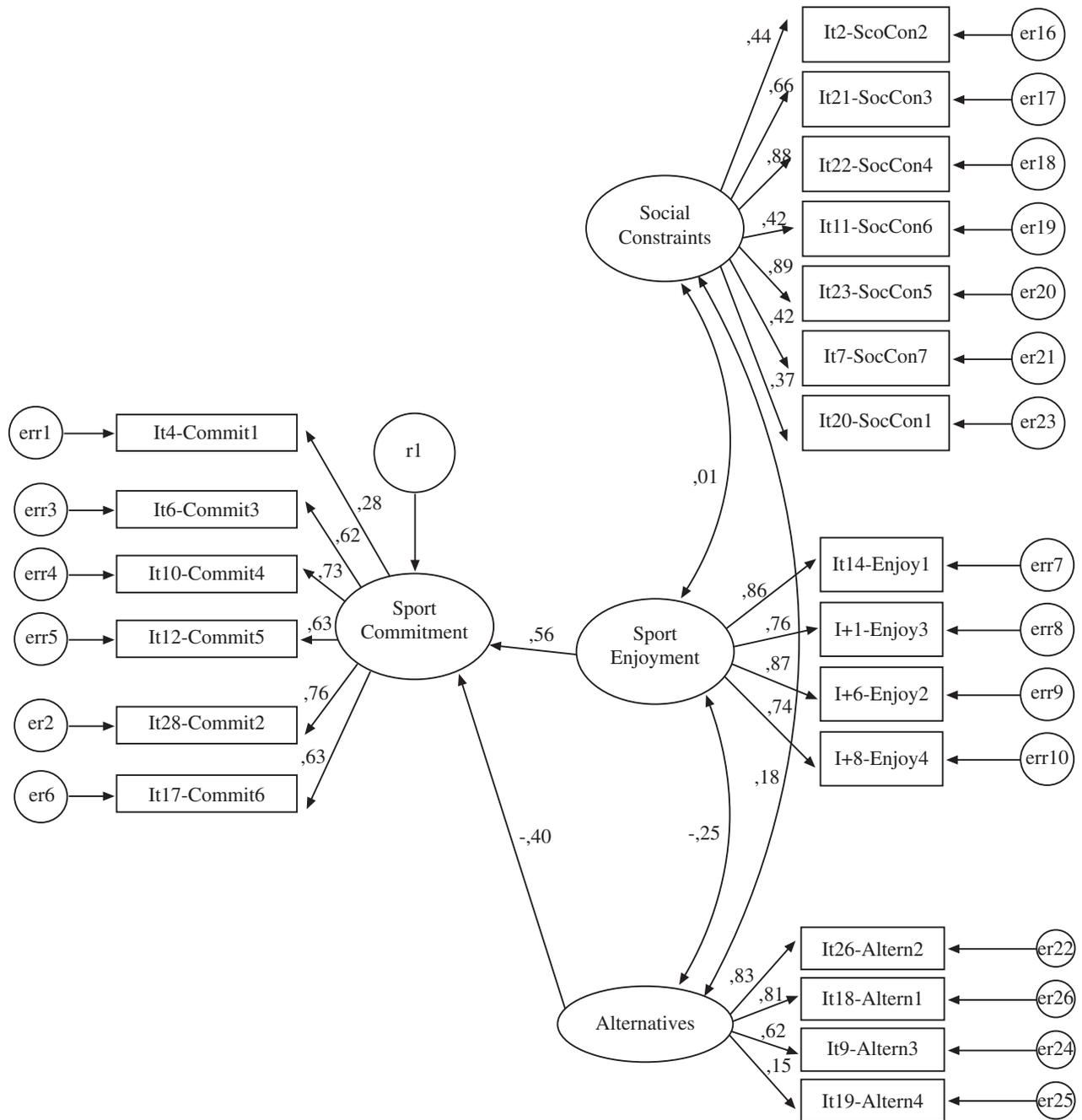


Figure 1. Parameter estimates for Structural model to analyse the Sport Commitment predictors (without uniquenesses to simplify the figure). *p<.001

homogeneous within young soccer players (a narrow age range and all of them played in a similar competitive league). The reliability coefficients for alternatives and investments were somewhat lower than those for commitment and satisfaction and these results are consistent with previous research. These results may be due to the multifaceted nature of alternatives and investments (e.g. investments in sport: time, effort, money) as explained by Rusbult, et al. (1998).

Interpreting our results of CFA and EFA was a bit more complex, but previous results from other studies could partly explain our results. It is important to note that none of the studies that have been made of the Sport Commitment Model corroborate all theoretical model assumptions. The low reliability for involvement opportunities and a better factor structure without this scale could be partly explained by the fact that this scale was added to restraining force sets for the Sport Commitment Model separately from past theoretical frameworks, such as Rusbult (1980). Moreover, the construct of involvement opportunities focuses on the *anticipation* of events or experiences rather than requirement for any particular opportunity reach fruition, so it could be difficult for an «active athlete» to imagine what advantages he could lose if he withdraw from sport. Neither did Weiss et al. (2001) include the construct of involvement opportunities in their study of junior tennis players because it is defined as anticipated benefits afforded from continued participation (e.g. friendship, skill mastery, positive adult interactions). Therefore, the construct considerably overlaps with such participation benefits as enjoyment that are already included in the model.

The results for the test of the Sport Commitment Model show that the predictive role of sport enjoyment within the Sport Commitment Model is an important result of this study and consistent with previous research finding that this determinant was the strongest predictor (Carpenter et al., 1993; Scanlan, Carpenter et al., 1993; Weiss et al., 2001). A better understanding of sport participation will emerge from further study into what makes the sporting experience enjoyable (e.g., García-Mas, Olmedilla, Morilla, Rivas, García, & Ortega, 2006). Results for Involvement alternatives corroborate model assumptions, that is, if the athletes evaluate other activities as more attractive in comparison with soccer, their commitment diminished.

Social constraints do not predict commitment in the present study, contrary to the model's assumptions. However, they moderately correlate with involvement alternatives ($r = .192$) and

with sport commitment ($r = .139$). That is compatible with the idea that social constraints have an indirect influence on sport commitment through involvement alternatives. As shown in different studies (Carpenter & Coleman, 1998; Scanlan, Carpenter et al., 1993), results for the Social Constraints scale have been controversial and have not proven the predicted relationship between sport commitment and social constraints.

Study Limitations and Further Research

The sport commitment model is an appealing conceptual framework that could provide us with robust information about the participation of athletes, but because of limited empirical support, the model is still in its infancy. This limitation also constitutes a motive for continuing with the study of this model.

The present sample comprised a crucial age range where an increase sport dropout was verified due to category transition and the players' ability to progress to another competitive level. However, the small age range (14-16 years old) constitutes a limitation to the study that does not allow for the inferences of other age ranges. Further studies comprising more heterogeneous Spanish samples are essential, to analyse possible differences between ages, gender, sports or competitive levels.

To summarise, some considerations should be made. The results suggest that the integration of sport enjoyment and sport commitment constructs within a broader motivational context could be successful for promoting participation in sport and avoiding dropout from sports. Studies should continue to consider which practical strategies should be targeted for enhancing players' enjoyment of and desire to sustain involvement in sport.

It is accepted that an athlete with a high level of Sport Commitment has fewer probabilities of dropout. Further, longitudinal studies, such as those proposed by Boixadós, Cruz, Torregrosa and Valiente (2004), and Boixadós, Valiente, Mimbbrero, Torregrosa and Cruz (1998), could provide important information for avoiding sport dropout proposing intervention programs in an individual way through the factors that present a weak contribution to high Sport Commitment.

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References

- Arbuckle, J. L. (2003). Amos 5.0 update to the amos user's guide. Chicago: SmallWaters.
- Boixadós, M., Cruz, J., Torregrosa, M., & Valiente, L. (2004). Relationship among motivational climate, satisfaction, perceived ability and fair play attitudes in young soccer players. *Journal of Applied Sport Psychology, 16*, 301-317.
- Boixadós, M., Valiente, L., Mimbbrero, J., Torregrosa, M., & Cruz, J. (1998). Papel de los agentes de socialización en deportistas en edad escolar. *Revista de Psicología del Deporte, 7*, 295-310.
- Browne, M.W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods and Research, 21*, 230-258.
- Carpenter, P.J., & Coleman, R. (1998). A longitudinal study of elite youth cricketers' commitment. *Journal of Sport Psychology, 29*, 195-210.
- Carpenter, P.J., Scanlan, T. K., Simons, J. P., & Lobel, M. (1993). A test of the Sport Commitment model using structural equation modeling. *Journal of Sport and Exercise Psychology, 15*, 119-133.
- Cattell, R.B. (1978). The scientific use of factor analysis. New York, NY: Plenum Press.
- Cecchini, J.A., Méndez, A., & Muñoz, J. (2002). Motives for practicing sport in Spanish schoolchildren. *Psicothema, 14*, 523-531.
- Cervelló, E., Hutzler, Y., Reina, R., Sanz, D., & Moreno, J.A. (2005). Goal orientations, contextual and situational motivational climate and competition goal involvement in Spanish athletes with cerebral palsy. *Psicothema, 17*, 633-638.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.

- Dzubian, C.D., & Shirkey, E.C. (1974). When is a correlation matrix appropriate for factor analysis? *Psychological Bulletin*, *81*(6), 358-361.
- Farrell, D., & Rusbult, C.E. (1981). Exchange variables as predictors of job satisfaction, job commitment, and turnover: The impact of rewards, costs, alternatives and investments. *Organizational Behaviour and Human Performance*, *27*, 78-95.
- García-Mas, A., Olmedilla, A., Morilla, M., Rivas, C., García, E., & Ortega, E. (2006). Un nuevo modelo de cooperación deportiva y su evaluación mediante un cuestionario. *Psicothema*, *18*, 425-432.
- Gould, D., Feltz, D., Horn, T., & Weiss, M. (1982). Reasons for discontinuing involvement in competitive youth swimming. *Journal of Sport Behavior*, *5*, 155-165.
- Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling*, *6*, 1-55.
- Lei, M., & Lomax, R.G. (2005). The effect of varying degrees of non-normality in structural equation modeling. *Structural Equation Modeling*, *12*(1), 1-27.
- Marsh, H.W., Hau, K.T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling*, *11*(3), 320-341.
- Martínez, D. (2000). Contrastación del modelo de inversión de Rusbult en una muestra de casados y divorciados. *Psicothema*, *12*(1), 65-69.
- McDonald, R.P., & Ho, R.M.-H. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, *7*(1), 64-82.
- Morales, V., Hernández-Mendo, A., & Blanco, A. (2005). Evaluación de la calidad en los programas de actividad física. *Psicothema*, *17*, 311-317.
- Muthén, L.K., & Muthén, B.O. (2003). *Mplus (version 3.01)*. Los Angeles CA: Muthén & Muthén.
- Nunnally, J.C. (1978). *Psychometric theory (2nd edition)*. New York: McGraw-Hill.
- Rusbult, C.E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology*, *16*, 172-186.
- Rusbult, C.E. (1983). A longitudinal test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvements. *Journal of Personality and Social Psychology*, *45*, 101-117.
- Rusbult, C.E., & Buunk, B.P. (1993). Commitment process in close relationships: An interdependence analysis. *Journal of Social and Personal Relationships*, *10*, 175-204.
- Rusbult, C.E., & Farrell, D. (1983). A longitudinal test of the investment model: The impact on job satisfaction, job commitment and turnover of variations in rewards, costs, alternatives and investments. *Journal of Applied Psychology*, *68*, 429-438.
- Rusbult, C.E., Martz, J.M., & Agnew, C.R. (1998). The investment model scale: Measuring commitment level, satisfaction level, quality of alternatives and investment size. *Personal Relationships*, *5*, 357-391.
- Scanlan, T.K., Carpenter, P.J., Schmidt, G.W., Simons, J.P., & Keeler, B. (1993). An Introduction to the Sport Commitment Model. *Journal of Sport and Exercise Psychology*, *15*, 1-15.
- Scanlan, T.K., Simons, J.P., Carpenter, P.J., Schmidt, G.W., & Keeler, B. (1993). The Sport Commitment model: Measurement development for the youth-sport domain. *Journal of Sport and Exercise Psychology*, *15*, 16-38.
- Scanlan, T.K., Russell, D.G., Beals, K.P., & Scanlan, L.A. (2003). Project on elite athlete commitment (PEAK): II. A direct test and expansion of the Sport Commitment model with elite amateur sportsmen. *Journal of Sport and Exercise Psychology*, *25*, 377-401.
- Scanlan, T.K., Russell, D.G., Wilson, N.C., & Scanlan, L.A. (2003). Project on elite athlete commitment (PEAK): I. Introduction and Methodology. *Journal of Sport and Exercise Psychology*, *25*, 360-376.
- SPSS (2003). *SPSS for Windows (Version 12.0)* [Computer software]. Chicago: SPSS Inc.
- van Prooijen, J.W., & van der Kloot, W.A. (2001). Confirmatory analysis of exploratively obtained factor structures. *Educational and Psychological Measurement*, *61*(5), 777-792.
- Weiss, M.R., Kimmel, L.A., & Smith, A.L. (2001). Determinants of Sport Commitment among junior tennis players: Enjoyment as a mediating variable. *Pediatric Exercise Science*, *13*, 131-144.
- Weiss, M.R., & Petlichkoff, L.M. (1989). Children's motivation for participation in withdrawal from sport: Identifying the missing links. *Pediatric Exercise Science*, *1*, 195-211.