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ORIGINAL

MOTIVATIONAL ORIENTATION, AUTONOMY SUPPORT, AND PSYCHOLOGICAL NEEDS IN BEACH HANDBALL

ORIENTACIÓN MOTIVACIONAL, APOYO A LA AUTONOMÍA Y NECESIDADES PSICOLÓGICAS EN BALONMANO PLAYA

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ABSTRACT

The aim of this study was to examine the relationship between motivational orientation and perceived autonomy support with the satisfaction of basic psychological needs in beach handball players. 112 players between 17 and 32 years ($M = 23.23$, $SD = 6.81$) participated in the study. Task and Ego Orientation in Sport Questionnaire (TEOSQ), Sport Climate Questionnaire (SDT) for the climate to support autonomy and Psychological Need Satisfaction in Exercise Scale (PNSE) was used. The analysis performed showed significant relationships between the constructs studied, emphasizing support for autonomy as the best predictor of the three basic psychological needs. Nevertheless, by gender the groups showed different predictive models.

KEYWORDS: Motivational orientation; autonomy support, basic psychological needs; beach handball.

RESUMEN

El objetivo de este estudio fue examinar las relaciones entre la orientación motivacional y la percepción de apoyo a la autonomía con la satisfacción de las necesidades psicológicas básicas en jugadores de balonmano playa. Participaron en el estudio 112 jugadores con edades entre 17 y 32 años ($M = 23,23$; $DT = 6,81$). Se utilizó el Cuestionario de Orientación al Ego y a la Tarea en el Deporte (TEOSQ), el Cuestionario de Clima en el Deporte (SDT) para el clima de apoyo a la autonomía y la Escala de Satisfacción de Necesidades Psicológicas Básicas (PNSE). Los análisis efectuados pusieron de manifiesto relaciones significativas entre los constructos estudiados, destacando que el apoyo a la autonomía fue el factor que mejor predijo las tres necesidades psicológicas para la muestra total. Sin embargo, por género mostraron predictores diferentes para la satisfacción de las necesidades de autonomía y relación con los demás.

PALABRAS CLAVE: Orientación motivacional; apoyo a la autonomía; necesidades psicológicas básicas; balonmano playa.

INTRODUCTION

Analysis of psychological factors is one of the fastest-growing areas of research in the field of sport (Almagro, Sáenz-López, González-Cutre, & Moreno-Murcia, 2011; García-Calvo, Sánchez Miguel, Leo, Sánchez Oliva, & Amado, 2011; Han, Kim, & Zaichkowsky, 2013; León-Prados, Fuentes, & Calvo, 2014; Lundqvist, Kenttä, & Raglin, 2011), and numerous studies have investigated the impact of motivational factors of the behavior of athletes (Massuça, Fragoso, & Teles, 2014; Moreno, Cervelló, & González-Cutre, 2010; Ramis, Torregrosa, Viladrich, & Cruz, 2013; Standage & Ryan, 2012). Self-determination theory (SDT) (Deci y Ryan, 1985, 1991, 2000) is one of the most prominent, coherent models for explaining human motivation in many spheres of life, including the practice of sport and physical activity (Moreno & Martínez, 2006). It is considered to be one of the most solid theories for explaining adherence to exercise (Carrasco, Chiroso, Martín, Cajas, & Reigal, 2015) and has been widely used to analyze different motivational aspects related to sport and physical activity (Almagro et al., 2011; Amado et al., 2015; Gené & Latinjak, 2014; Pulido et al., 2015).

According to SDT, motivation falls along a continuum, ranging from intrinsic motivation to extrinsic motivation to amotivation (Deci & Ryan, 1985, 2000). Intrinsic motivation is associated with higher levels of self-determination and refers to a person's engagement in a particular activity for the pleasure to be derived from it. Extrinsic motivation involves four types of regulation characterized by varying levels of self-determination, ranging from high to low. It is driven not by the activity itself, but rather by the potential rewards that can be earned by doing the activity. The four types of regulation are 1) integrated regulation (related to how a task aligns with a person's values and life goals); 2) identified regulation (related to the personal benefits a task can provide); 3) introjected regulation (related to a sense of personal obligation); and 4) external regulation (related to behavior controlled by extrinsic factors). At the opposite end of the continuum is amotivation, which reflects the lowest degree of self-determination and corresponds to a lack of intention to engage in a particular behavior (Amado, Leo, Sánchez-Oliva, González, & López, 2012; Fortier, Duda, Guerin, & Teixeira, 2012).

Basic Psychological Needs Theory is a subtheory of SDT (Deci & Ryan, 1985, 1991, 2000) that considers that human beings need to satisfy three basic needs: competence (a feeling that they are capable of successfully or efficiently performing a task within their environment), autonomy (a desire to take the initiative in regulating their own actions), and relatedness (a desire to feel accepted by people they consider to be important). Satisfaction of these needs has been linked to the development and maintenance of psychological health and/or personal well-being (Moreno-Murcia et al., 2011). Furthermore, satisfaction of these basic needs appears to give rise to different forms of motivation, characterized by higher or lower levels of self-determination (Gené & Latinjak, 2014; Standage & Ryan, 2012). As indicated by Moreno, González-Cutre, Martín-Albo, and Cervelló (2010), situations that promote autonomy, ensure the

achievement of goals, and foster group cohesion are more likely to facilitate intrinsic motivation. On the contrary, situations that do not satisfy these basic needs are more likely to foster extrinsic motivation (Álvarez, Balaguer, Castillo, & Duda, 2009).

A review of the literature and specifically of the hierarchical model developed by Vallerand, Fortier, and Guay (1997) shows a direct association between motivation and behavior. According to this model, motivation is determined by social factors and the effect of these factors on motivation is mediated by perceived senses of competence, autonomy, and relatedness. Two examples of factors that can influence the satisfaction of basic psychological needs during the performance of a task are motivational orientation and autonomy support. Nicholls (1992) suggested that motivational orientations reflect individual differences in terms of personal criteria regarding success. He reported the existence of at least two goal orientations, referred to as task orientation and ego-orientation. In task orientation, subjective perceptions of ability and success are based on learning experiences, personal improvement, and mastery of the task, while in ego-orientation, individuals believe they have succeeded when they demonstrate that they possess a superior skill to others or when they achieve the same results as others but with less effort. Task orientation and ego-orientation are independent, *i.e.*, a person can have high or low levels of both, or high levels of one and low levels of another (Duda & Nicholls, 1992). It has been widely reported that task orientation predicts satisfaction of basic psychological needs (*e.g.*, Almagro et al., 2011), while ego-orientation negatively predicts self-determined motivation (Moreno, Cervelló, & González-Cutre, 2010).

SDT emphasizes the active role that people play in their own personal growth, integrity, and well-being through satisfaction of basic needs, but it also stresses the importance of the role that other people play, as they can facilitate or frustrate these needs. This second aspect of SDT, known as motivational climate, was defined by Ames (1992) as a set of implicit and/or explicit signals perceived in an environment that determine success or failure. This climate is created by parents, teachers, companions, friends, etc. and in the particular case of sport, coaches play a critical role. SDT holds that autonomy support is essential for the satisfaction of basic psychological needs (Deci & Ryan, 1987). This support is defined as the willingness of an individual in a position of authority (*e.g.*, a coach) to put him or herself in the other person's situation (*e.g.* the athlete's) and provide appropriate, meaningful information and opportunities to take decisions, while at the same time minimizing external pressure (Black & Deci, 2000). Creation of a positive motivational climate is likely to satisfy not only basic autonomy needs but also needs related to competence (*e.g.*, Vallerand, Fortier, & Guay, 1997) and relatedness (López-Walle, Balaguer, Castillo, & Tristán, 2012). SDT also holds that favoring perceptions of autonomy, competence, and relatedness mediated by social factors encourages more self-determined types of motivation (Deci, 1975; Deci & Ryan, 1985, 1991). The type of motivation triggered in athletes is largely dependent on the climate created by their coaches, *i.e.*, the more a coach uses

autonomy-supportive practices, the more the athletes under his or her guidance will develop intrinsic motivation and greater self-determined forms of regulation (Almagro et al., 2011; Balaguer, Castillo, Duda, & Tomás, 2009; Deci & Ryan, 2000).

Numerous studies have identified a positive association between satisfaction of basic psychological needs and intrinsic motivation (e.g., Pulido, Leo, Chamorro, & García-Calvo, 2015). While psychological aspects of handball have been analyzed in the literature (Massuça, Fragoso, & Teles, 2014; Ortín-Montero, De la Vega, & Gosálvez-Botella, 2013), few studies have focused on motivational factors. Motivation has been analyzed in different sporting contexts (Méndez-Giménez, Fernández-Río, & Cecchini-Estrada, 2013; Moreno, Jiménez, Gil, Aspano, & Torrero, 2011) and populations (Almagro et al., 2011), but to our knowledge no studies have analyzed the associations between motivational orientation and perceived autonomy support and the satisfaction of basic psychological needs in handball. The aim of this study was to analyze motivational orientation and perceived autonomy support as predictors of the satisfaction of basic psychological needs in a sample of top-level beach handball players.

METHOD

Participants

We studied 112 male and female beach handball players who competed on under-19 or senior Spanish teams in the 2013 European Beach Handball Championships or on a team that reached the final stages of the 2013 Spanish Beach Handball Championship. The mean \pm SD age of the players was 23.23 (6.81) years (range, 17-32 years). The sample consisted of 62 men (55.36%) and 50 women (44.64%); 53 of the men were senior-level players (85.48%) and 9 were under-19 (14.52%). The respective figures for the women were 40 (80%) and 10 (20%).

Instruments and Material

Drawing on the main theoretical framework for this study, SDT (Deci & Ryan, 1985), we selected the following instruments:

- a) The validated Spanish version of the Task and Ego Orientation in Sport Questionnaire (TEOSQ, Duda, 1989; Balaguer, Castillo, & Tomás, 1996). The TEOSQ consists of 13 items that evaluate achievement goals on two subscales: task orientation (7 items) and ego-orientation (6 items). Each item is preceded by the stem "I feel most successful in sport when..." and is rated on a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency of the Spanish questionnaire (Balaguer et al., 1996), measured by Cronbach's α , was 0.78 for the task orientation scale and 0.80 for the ego-orientation scale. The respective values for this study were 0.88 and 0.77.

- b) The validated Spanish version of the Sport Climate Questionnaire (SDT, Sport Climate Questionnaire, n.d.; Balaguer, Castillo, Duda, & Tomás, 2009). This questionnaire evaluates athletes' perceptions of the autonomy support offered by their coaches and has a full 15-item version and a shorter 6-item version. Each item is preceded by the stem "In my sport...". The answers are rated on a 7-point Likert-type scale ranging from 1 (not at all true) to 7 (very true). An example of an item is "My coach provides me choices and options". Preliminary studies have confirmed the reliability of the instrument in Spanish samples (Balaguer, Castillo, & Duda, 2008). We used the 15-item questionnaire for this study. The internal consistency analyses showed a Cronbach's α of 0.96 for the original Spanish questionnaire (Balaguer et al., 2009) and of 0.81 for this study.

- c) The Psychological Need Satisfaction in Exercise (PNSE) Scale created by Wilson et al. (2006) and validated in Spanish by Moreno-Murcia, Marzo, Martínez, and Conte (2011). The PNSE is an 18-item scale, with six items to evaluate each of the three basic psychological needs: competence (I feel confident I can do even the most challenging exercises), autonomy (I feel I can take decisions during my training sessions), and relatedness (I feel close to my exercise companions because they accept me for who I am). The items are all contextualized by a stem that prompts the respondents to think about how they feel while exercising. Each item is rated on a 7-item Likert-type scale ranging from 1 (false) to 6 (true). The internal consistency values (Cronbach α) for the original Spanish scale were 0.80 for competence, 0.69 for autonomy, and 0.73 for relatedness. The respective values for this study were 0.84, 0.82, and 0.68.

Procedure

To recruit the sample, we organized meetings with those in charge of the teams and national squads participating in the two championships analyzed, in which we explained the purpose of the study and asked for their collaboration. Informed consent was obtained from all the participants, or from their parents in the case of players under 18. All the data were collected on the day before the championships started. The two championships were the European Beach Handball Championships held in Randers, Denmark in July 2013 and the Spanish Beach Handball Championship Finals held in Almería, Spain in August 2013. The athletes filled in the questionnaires following appropriate instructions. The study was performed at all times in accordance with the principles of the Declaration of Helsinki (World Medical Association, 2013).

Data Analysis

The data were analyzed using descriptive and inferential statistics. The Kolmogorov-Smirnov test was used to test normality of distribution, while

Cronbach's α was used to test the reliability of the different scales. Pearson's bivariate correlation coefficient (Pearson's r) was used to analyze correlations between study variables. The ability of motivational orientation and perceived autonomy support among athletes to predict satisfaction of basic psychological needs was evaluated using stepwise linear regression analysis, with analysis of the following parameters: R and R^2 , Durbin-Watson, standardized coefficient (beta), t value for B , tolerance index (T), and variance inflation factor (VIF).

All the data were processed using the SPSS software package (version 20.0).

RESULTS

Table 1 summarizes the descriptive statistics for the study variables. As shown by the asymmetry, kurtosis, and Kolmogorov-Smirnov values, the data were normally distributed.

Table 1 Descriptive and normality data

	Total					Men					Women				
	<i>M</i>	<i>SD</i>	<i>A</i>	<i>K</i>	<i>Z</i>	<i>M</i>	<i>SD</i>	<i>A</i>	<i>K</i>	<i>Z</i>	<i>M</i>	<i>SD</i>	<i>A</i>	<i>K</i>	<i>Z</i>
EGO-O	11.79	4.59	0.74	-0.13	1.28	12.21	4.64	0.66	-0.12	0.88	11.24	4.51	0.88	0.02	1.26
TASK O	29.47	3.42	-0.58	-0.13	1.12	28.63	3.59	-0.45	-0.35	1.01	30.55	2.87	-0.52	-0.43	0.99
AUT SUP	76.84	12.55	-0.14	-0.20	0.52	78.06	12.92	-0.12	-0.48	0.54	75.27	12.00	-0.25	0.30	0.57
COM	30.55	4.09	-0.60	-0.23	1.29	30.63	4.30	-0.74	0.08	0.96	30.45	3.84	-0.39	-0.80	1.04
AUT	22.35	6.16	0.12	-0.70	0.91	24.37	5.88	0.10	-1.04	0.79	19.76	5.56	0.11	-0.69	0.78
REL	27.59	4.33	-0.10	-0.63	0.68	27.24	4.43	-0.06	-0.50	0.47	28.04	4.21	-0.12	-0.81	0.65

Note. Z = Kolmogorov-Smirnov; A = Asymmetry; K = Kurtosis; EGO-O = Ego-orientation; TASK O = task orientation; AUT SUP = Autonomy support; COM = competence; AUT =autonomy; REL =relatedness.

Table 2 shows the correlations (Pearson correlation coefficient) between variables. Note that autonomy support was positively and significantly correlated with the three basic psychological needs for the overall population.

Table 2. Correlation levels (Pearson)

	Total			Men			Women		
	COM	AUT	REL	COM	AUT	REL	COM	AUT	REL
EGO-O	-0.10	0.23*	-0.11	-0.15	0.14	-0.02	-0.04	0.30*	-0.21
TASK O	0.53**	-0.28**	0.22*	0.51**	-0.25*	0.10	0.66**	-0.10	0.37**
AUT SUP	0.54**	0.19*	0.32**	0.63**	0.15	0.37**	0.39**	0.18	0.28*

Note. AUT = autonomy; AUT SUP = autonomy support; COM = competence; EGO-O = ego-orientation; Task-O = task orientation; REL = relatedness.

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3 shows the results for the stepwise linear regression analyses. The variables excluded during the building of the model are not shown due to their non-significance ($p > 0.05$). The results show the goodness of fit of the model, i.e., the linearity of the relationships between the predictor variables and the criterion variable, the homoscedasticity of the data, and the normality of residuals, which had a mean value of 0 and a standard deviation of almost 1 (0.99). The Durbin-

Watson values are also adequate as they were within a range of 1.60 and 1.94. Pardo and Ruiz (2005) consider that a Durbin-Watson statistic of between 1.5 and 2.5 indicates independence of observation (absence of autocorrelation between residuals). Finally, the colinearity statistics show the adequacy of the variance inflation factors (1.00-1.32) and tolerance index (0.76-1.00) (Hair, Anderson, Tatham, & Black, 1988).

Table 3 Stepwise linear regression analysis

Criterion variable	R	R ²	D-W	Predictor variable	Beta	t	T	FIV
<i>Competence</i>								
Total	0.64	0.40	2.09	Aut. support	0.38	4.65***	0.82	1.22
				Task O	0.37	4.57***	0.82	1.22
Men	0.68	0.44	1.69	Aut. support	0.50	4.62***	0.77	1.31
				Task O	0.27	2.47*	0.77	1.31
Women	0.66	0.43	2.37	Task O	0.66	6.06***	1.00	1.00
<i>Autonomy</i>								
Total	0.48	0.21	1.61	Task O	-0.39	-4.07***	0.76	1.32
				Aut. support	0.40	4.28***	0.81	1.23
				Ego-O	0.19	2.11*	0.90	1.11
Men	0.41	0.14	1.76	Task O	-0.43	-3.22**	0.77	1.31
				Aut. support	0.37	2.74**	0.77	1.31
Women	0.31	0.08	1.97	Ego-O	0.31	2.22*	1.00	1.00
<i>Relatedness</i>								
Total	0.32	0.10	1.71	Aut. support	0.32	3.55***	1.00	1.00
Men	0.37	0.12	2.03	Aut. support	0.37	3.11**	1.00	1.00
Women	0.38	0.13	2.43	Task-	0.38	2.80**	1.00	1.00

Note: Aut. support = autonomy support; D-W = Durbin-Watson; Ego-O = ego orientation; T = tolerance Index; TaskO = task orientation; VIF = variance inflation factor.

* $p < .05$; ** $p < .01$; *** $p < .001$.

The results in Table 3 show that the combined factors autonomy support and task orientation predicted satisfaction of the need for competence for the overall sample ($R = 0.64$; corrected $R^2 = 0.40$; $F = 37.16$; $p < 0.001$) and the male sample ($R = 0.68$; corrected $R^2 = 0.44$; $F = 25.15$; $p < 0.001$) and satisfaction of the need for autonomy for the male sample ($R = 0.41$; corrected $R^2 = 0.14$; $F = 6.08$; $p < 0.01$). Task orientation, ego-orientation, and autonomy support in turn predicted satisfaction of the need for autonomy for men and women combined ($R = 0.48$; corrected $R^2 = 0.21$; $F = 10.95$; $P < .001$). In the case of women, task orientation only predicted satisfaction of the need for competence ($R = 0.66$; corrected $R^2 = 0.43$; $F = 36.77$; $P < 0.001$) and relatedness ($R = 0.38$; corrected $R^2 = 0.13$; $F =$

7.86; $P < 0.01$), while ego-orientation predicted satisfaction of the need for autonomy ($R = 0.31$; corrected $R^2 = 0.08$; $F = 4.95$; $P < 0.05$). Finally, in the last step of the regression analysis, the model included autonomy support as a predictor of the satisfaction of the need for relatedness for the sample as a whole ($R = 0.32$; corrected $R^2 = 0.10$; $F = 12.60$; $P < 0.01$) and for men ($R = 0.37$; corrected $R^2 = 0.12$; $F = 9.67$; $P < 0.01$).

Discussion

The aim of this study was to analyze associations between motivational orientation and perceived autonomy support and satisfaction of three basic psychological needs—competence, autonomy, and relatedness—in a sample of top-level male and female beach handball players. The results show that the constructs analyzed were significantly associated and that autonomy support predicted satisfaction of all three basic needs for the sample as a whole. Task orientation also predicted satisfaction of the need for competence in both men and women, although differences were found for the predictors of autonomy and relatedness between men and women. The results of the correlation and linear regression analyses confirm the objectives proposed and satisfy the purpose of the study, and support the findings of previous studies showing associations between the different factors in a range of contexts (Diehl & Hay, 2010; Gené & Latinjak, 2014).

Autonomy support predicted satisfaction of the three basic needs for the sample as a whole and for the male players. These results are similar to those reported by Ramos et al. (2013) and Balaguer et al. (2009) and further support the theory that an autonomy-supportive environment is important not only for adolescents but also for adult and elite athletes, as it appears to facilitate an internal perceived locus of causality that enhances a sense of autonomy. To help athletes, whether adolescents or adults, develop a greater level of self-determined motivation, thus, coaches could adopt an autonomy-supportive style of communication in which they clearly convey the meaning of the activities being undertaken, support freedom of expression and action, and engage the athletes in decision-making (Balaguer et al., 2009).

Task orientation positively predicted satisfaction of the need for competence in all three groups (men, women, and men and women combined) and the need for relatedness in the female group. These results are in agreement with previous findings of studies in the field of sport and physical activity that have shown how a task-involved motivational climate positively predicts the satisfaction of competence, autonomy, and relatedness (Almagro et al., 2011; Quested & Duda, 2009, 2010; Sánchez-Oliva, Leo, Sánchez-Miguel, Amado, & García-Calvo, 2012) and is also linked to intrinsic motivation (Moreno, Cervelló, & González-Cutre, 2010; Ommundsen, Lemyre, Abrahamsen, & Roberts, 2010).

Task orientation was a negative predictor of autonomy need satisfaction for men and for men and women combined. This was an unexpected finding and contrasts

with reports from studies in a similar setting (e.g., Sánchez-Oliva et al., 2012). The discrepantcy is possibly related to the limited room for decision-making in handball, as the bulk of tactical and positioning decisions are taken by a single player—the playmaker (Morillo, Reigal, & Hernández-Mendo, 2015).

Our results also show that ego-orientation was a positive predictor of the satisfaction of the need for autonomy for women and the group as a whole. These results are also inconsistent with the theoretical framework, although they are in line with previous reports. Almagro et al. (2011), for example, found that an ego-oriented climate predicted the satisfaction of the need for autonomy and competence in sport. These results could possibly be explained by the use of an ego-oriented coaching style, characterized by little variation in tasks, an authoritarian environment, skill-based groupings, and results-based evaluation (Guzmán & García-Ferriol, 2002). Athletes thus unfamiliar with other styles of coaching might think that the tasks they are given are in their best interests. Finally, and unlike the other variables analyzed, ego-orientation was not associated with satisfaction of competence or relatedness in any of the groups. Again, this contrasts with studies such as that by Quested and Duda (2009), who reported that ego-orientation was negatively associated with relatedness need satisfaction.

Our study has some limitations, including our small sample size, the lack of similar studies with which to compare our findings (*i.e.*, our results should be interpreted with caution), and the lack of consideration of more motivational variables (e.g., motivational climate) that could give a broader perspective on the motivational climate in beach volleyball. Despite these limitations, however, our study provides new evidence on the associations between the different constructs studied. As shown, motivational orientation and the climate generated by coaches positively predicted the satisfaction of basic psychological needs in a sample of top-level beach handball players. This information could be very useful for coaches, as it provides insights into different motivational variables that could impact performance and that need be taken into account during training.

Given the scarcity of studies on beach handball, there are numerous possibilities for future lines of research in this area. It would be interesting, for instance, to extend work on the associations between different motivational variables to better understand our findings, and to analyze additional associations with other psychological constructs to help better define the psychosocial profile of beach handball players.

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