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ORIGINAL

CULTURE, AGE AND SEX AS MEDIATORS OF PHYSICAL SELF-CONCEPT

LA CULTURA, LA EDAD Y EL SEXO COMO MEDIADORES DEL AUTOCONCEPTO FÍSICO

Alemany-Arrebola, I.[1]; Cortijo-Cantos, A.[2]; Granda-Vera, J.[3]

[1] Profesora Contratada Doctora. Dpto de Psicología Evolutiva y de la Educación. Universidad de Granada (Spain) alemany@ugr.es
[2] Profesora Asociada. Departamento de Educación. Universidad Antonio de Nebrija (Spain) Acortijo@nebrija,es
[3] Titular de Universidad. Dpto de Didáctica de la Expresión Corporal. Universidad de Granada) (Spain) jgranda@ugr,es

Spanish-English translator: Lucía Granda, lucgranda@hotmail.com

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ABSTRACT

Age and sex are key variables in the construction of the physical self-concept, but in current societies, where different ethnic groups coexist, the study of the influence of the native culture is a variable that deserves special attention. The sample was composed by 1911 students aged between 10 and 17 years (971 women and 940 men), using the PSCSS questionnaire as a measuring instrument. The results confirmed the existence of influential mediators of the physical self-concept:1) sex ($p < .001$), being the males who obtained the highest scores, 2) age ($p < .05$), since the physical self-concept develops with age, and 3) culture ($p < .001$), being the subjects with *tamazight* origin who obtained the highest values. The factors that seems to be the most influential when constructing a positive physical self-concept are "Physical Condition" and "Motor Ability".

KEYWORDS: Physical self-concept, sex, adolescent, berber, european

RESUMEN

La edad y el sexo son variables clave en la construcción del autoconcepto físico, pero en las sociedades actuales, donde conviven diferentes grupos étnicos, el estudio de la influencia de la cultura autóctona es una variable que merece especial atención. La muestra estuvo compuesta por 1911 estudiantes de entre 10 y 17 años (971 mujeres y 940 hombres), utilizando el cuestionario AFAPS como instrumento de medida. Los resultados confirmaron la existencia de mediadores influyentes en el nivel de autoconcepto físico: 1) sexo ($p < 0,001$), siendo los chicos los que obtienen mejores resultados; 2) edad ($p < 0,05$,) ya que el autoconcepto físico mejora con la edad, y 3) cultura ($p < 0,001$), siendo los sujetos pertenecientes a la etnia tamazight que obtienen los valores más altos. Los factores que parecen ser los más influyentes cuando se construye un autoconcepto físico positivo son "Condición física" y "Habilidades motrices".

PALABRAS CLAVES: Autoconcepto físico, adolescente, bereber, europeo.

INTRODUCTION

Physical self-concept is one the main dimension comprising self-concept, which is conceptualized according to a hierarchical and multidimensional model (Shavelson, Hubner & Stanton, 1976) since different self-perceptions are organized along specific dimensions: the general self-concept is composed by academic and no academic self-perception; which comprises social and physical self-concept. The latter is influenced by sociocultural elements and is one of the most relevant dimensions when teenagers develop their self-esteem (Rodríguez, González & Goñi, 2013). However, we have to consider that there is a wide range of other psychosocial variables that could impact on teenager's self-esteem (Holgado, Soriano & Navas, 2009).

The tetradimensional physical self-concept model (Fox & Corbin; 1989; Goñi, Ruiz de Azúa & Rodríguez, 2006) is the most accepted model nowadays and includes “Sports Competence” (perceptions of sports and athletic ability, ability to learn new sports and motor skills, and level of confidence when practicing sports), “Physical Condition” (perceptions of the level of physical condition, stamina, and the level of confidence in their physical condition when practicing physical activity), “Physical Strength” (perception of the ability of generate muscular tension in situations involving strength-demanding tasks), and “Physical Attractiveness” (feelings about the own physical appearance).
This model has been widely accepted in psychology to explain the physical self-concept in sports contexts. The most recent models, such as the one designed by Esnaola (2008), stablish that physical self-concept is grounded on the perception of the self in physical features, physical appearance, physical condition, strength and physical-sports abilities.

In relation to the sex variable, the research carried out by Klomsten, Skaalvik, and Espnes (2004), indicates that boys have a better self-concept than girls.

Likewise, Raustorp, Stahle, Gudasic, Kinnunen, and Mattsson (2005) stablish that males practicing physical activity score higher in physical condition and strength than females. These results are in line with the study conducted by Knowles, Niven, Fawkner and Henretty (2009) in which all the participants were women; it revealed that those who practice physical activity have a better perception of their physical condition.

Knowles, et al. (2009) and Haugen, Säfvenborm and Ommundsen (2011), indicate that differences were observed between boys and girls both in the physical self-concept and in all the dimensions comprising it, obtaining males the highest scores.

In a study with scholars aged 11 to 17, Soriano, Navas and Holgado (2011) found statistically significant differences in all dimensions comprising physical self-concept in favor of boys. Similar results were found by Revuelta, Esnaola and Goñi (2013) in a study with teenagers and university students from Cantabria and the Basque Country.

Regarding the age variable, Esnaola (2008) distinguishes the evolutionary pattern of women and men. In the case of women, it is observed that their perception of their Physical Ability decreases until they are 16 years old and it improves afterwards. In the case of males, the opposite tendency was found; they obtained the highest score when they are over 16 years old, and then suffered a decline. In relation to the Physical Condition, females reveal an increasing linear development since they are 12 years old until they are 22. In relation to the age variable, this study distinguishes three evolutionary stages: adolescence, youth and adulthood. It shows a fall of the punctuations in the dimensions Physical Ability and Physical Condition as individuals grow up. On the contrary, the results reveal an increase in the Physical Attractiveness and the General Physical Self-concept, although the study did not find a clear evolution in all the analyzed age groups.

Concerning the culture variable, there are few studies that consider culture of origin as a variable related to physical self-concept, although there are studies carried out with different populations. There are researches that consider that the differences of physical self-concept levels are grounded on the sociocultural context, where the person is socialized and assimilates beliefs and gender stereotypes about the ideal physical appearance and "gender-appropriate sports".

Thus, according to Klomsten, Skaalvik and Espnes (2004), in Western societies social acceptance among male peers is associated to an athletic body, while for many girls is associated to an attractive body. Although in most of the studies physical self-concept is related to age, sex or sports practice, there are other variables involved (although they are hardly considered), such as ethnic group, culture of origin and even geographical location (Maïano, Ninot, Stephan, Morin, Florent & Vallé, 2006).

Piéron, Telama, Almond and Carreiro da Costa (1999) stablished that there are differences in motor performance and sports linked to the country and the culture of the participants. This association could explain that children, regardless of their age, have similar lifestyles based on national living conditions. For these authors, social influence is determined by the influence of the family and significant people, and it can be decisive in the practice of physical activities.

Asçi, Alfermann, Gagar and Stiller (2008) conducted a study with German and Turkish adolescents and young adults. The results reveal significant differences depending on sex and age in all dimensions comprising physical self-concept in favor of boys and young adults. On the other hand, the results stablish differences depending on the culture of belonging; Germans have better qualifications in the dimensions related to competition, and Turks score higher in those related to physical appearance. Therefore, gender and culture are factors that should be considered for a better understanding of the physical self-concept.

Janić, Jurak, Milanović, Lazarević, Kovač, and Novak (2014), highlighted that Slovenian teenagers present the lowest average scores in three dimensions (Physical Self-concept, Appearance and Self-esteem) compared to students from Serbia, Croatia, and Bosnia Herzegovina. In addition, they did not find differences according to sex in the groups from Serbia and Bosnia. On the contrary, in the Slovenian and Croatian groups the boys obtained higher scores. These results may be the consequence of the influence of the western culture on the perception of the body.

Similarly, Çaglar (2009) analyzed the physical self-concept of Turkish teenagers and university students, finding significant differences between men and women in Physical Competence, Endurance and Strength in favor of males. In addition, boys have higher expectations of success in sports and physical activity than women. This may be caused by the gender expectations existing in this country: Turkish men are encouraged to participate in competitive sports while women are discouraged from doing these physical activities because they are afraid of losing their femininity. In this sense, it is necessary to go deep on the cultural expectations and the opportunities of practicing physical activity, and their impact on the Physical Competence subdimension of the physical self-concept. Maïano et al. (2006) conducted a study with French adolescents from the north and the south of the country, finding significant differences between boys and girls in all the subscales of physical self-concept, as well as significant differences in all the dimensions in favor of adolescents living in the North. More specifically, girls from the South had the lowest data in all dimensions and boys from the South had the lowest scores in the "Physical attractiveness" dimension with respect to boys and girls from the North. This difference may be due to socialization process given in the school environment and to the beliefs of French society about the ideal body.

In an investigation carried out by Marsh, Hau, Sung and Yu (2007) with Chinese adolescents, it was observed that boys have a higher physical self-concept than girls in the Strength, Endurance, Sport and General Physical Self-Concept

dimensions. Thus, the children of Hong Kong care less about their body image and it has less impact on their self-concept than on Western children; again, the role of culture is decisive.

In the current societies, different ethnic groups or cultures of origin coexist. The importance of the physical self-concept within the educational, medical and sports field (Esnaola & Rodríguez, 2008, Meza-Peña & Pompa-Guajardo, 2016; Vizuete, Gozalo, Fuentes & Madruga, 2010), requires studying the culture of origin, together with sex when studying preadolescents and adolescents. This multidimensional approach is necessary in order to face possible interventions or adaptations of physical education classes for the formation of a positive physical self-concept.

In the case of Melilla (Spain), the educational centers are characterized by multicultural classrooms representing the city cultural diversity. Thus, the population are divided into two major groups: citizens with peninsular origin and whose mother tongue is Spanish, and those citizens of Tamazight origin and Islamic religion. This cultural group comes from the Amazigh population, who reside throughout North Africa.

The rest of the population is varied: Jews and Gypsies, although the latter represent a minority (Manzano & Alemany, 2017). Given this cultural diversity in the classroom, this context is optimal for researching on education.
The present investigation aims at exploring the relation between the physical self-concept and the culture of origin, sex and age variables in a sample composed by preadolescent and adolescent students.

MATERIAL AND METHODS

Design

The design is based on a correlational ex post facto study through using an empirical-analytical methodology (Montero & León, 1998). The independent or attributive variables are the preadolescent and adolescent students' sex, age and culture of origin whereas the dependent variable is their physical self-concept.

Participants

The educational centers participating in the study were selected through a nonprobability quota sampling that makes sure that the population diversity was represented. For that, educational centers from different districts of the City were selected. The criteria to choose both Primary and Secondary centers were the geographical area —that is, be in different districts —, and the existence of cultural diversity in the centers. Finally, a total of nine out of the sixteen centers were selected: five Primary Education centers, three Secondary Education centers and one center that provides both Primary Education and Secondary Education.

In relation to the participants, a deliberate non-probabilistic sampling was conducted, being the selection criteria the teachers' willingness to participate in this study. The final sample was composed of 1911 students aged between 10 and 17 years, being the average age 13.41 and the standard deviation 1.83 with a confidence level of 95%, with a margin of error of 1.90%.
In relation to the sex variable, the sample was composed of 971 females and 940 males. Regarding the course, 691 are Primary Education students and 1220 are enrolled in Secondary Education. As for the culture of belonging, 910 are Berbers (439 are males and 471 females), 887 are from European origin (446 males and 441 females), and 106 mestizos (49 males and 57 females).

Materials

The questionnaire of Physical Self-concept on Primary and Secondary Students (PSPSS) (Granda, Alemany & Cortijo, 2016) presents a Cronbach's alpha of .884. After a confirmatory factor analysis of the PSPSS, a tetradimensional model of four components was proposed ("Motor Competence", "Motor Ability", "Physical Attractiveness" and "Physical Condition") to evaluate the goodness of fit of the model.

After removing missing values and conducting the analysis again, the indices are: c2 with a value of 1.043 (p = .000); the goodness of fit index = .827; the comparative adjustment index (CFI) = .970; and the root mean square error of approximation (RMSEA= .079) shows an acceptable adjustment.

The answer format of the PSPSS questionnaire is a Likert-type scale with four possible responses ranging from 1 "I totally disagree" and 4 "I totally agree", in such a way that the higher the score, the better self-concept.

Procedure

After contacting the centers, permission to access the centers was requested. In the same way, the parents and guardians of the minors were informed and asked for conformity to participate in the project as the Declaration of Helsinki requires.

Once the permissions were obtained, the day and hour to distribute the PSPSS were agreed with the Physical Education teachers and it was decided that the session would take place during a regular class. During this session the person in charge of applying the questionnaires instructed the subjects on how they had to respond, requesting the maximum sincerity and confidentiality. The students answered the questionnaires simultaneously and had time enough to read, understand and complete them.

Data Analysis

Statistical software SPSS 24.0 was used for conducting descriptive analysis of the data, ANOVA test, reliability statistics and multivariate analysis.

RESULTS

Firstly, an inferential analysis was applied to the PSPSS questionnaire results regarding sex (Table 1). The results reveal that men score higher in all the dimensions of the scale, existing significant differences except in Factor 3 (physical attractiveness). The results reveal a medium effect size (around 0.3), which is considered a relevant value (Morales, 2012).

Table 1. PSPSS according to sex

PSPSS dimensions	N and Mean	*t*	*p*	d_{COHEN}	effect -size *r*
Motor competence F1	N_{MALE}= 939 M= 17.60 N_{FEMALE}= 971 M= 15.33	12.70	0.000	0.58	0.28
Motor ability F2	N_{MALE}= 938 M= 10.47 N_{FEMALE}= 968 M= 9.75	9.10	0.000	0.42	0.20
Physical attractiveness F3	N_{MALE}= 940 M= 8.99 N_{FEMALE}= 971 M= 8.83	1.59	0.112	0.07	0.03
Physical condition F4	N_{MALE}= 935 M= 9.42 N_{FEMALE}= 965 M= 8.19	12.87	0.000	0.59	0.28
PSPSS total	N_{MALE}= 932 M= 46.49 N_{FEMALE}= 962 M= 42.13	11.69	0.000	0.53	0.25

*p<.005

After a deeper analysis, it is remarkable that the older the student is, the lower the physical self-concept is, although this fall is more prominent in females and males. There are significant differences between the two groups in the total score of the questionnaire, the Factor 2 (Motor Ability) and the Factor 4 (Physical Condition). In all of them, males score higher (Table 2).

Table 2. PSPSS according to sex and age variables

PSPSS dimensions	Males	Females	*F*	*p*	η_p^2
Motor Competence F1	M_{10}=17.93	M_{10}= 16.92	1.435	0.137	0.006
	M11=18.70	M_{11}= 16.26			
	M_{12}= 17.52	M_{12}=15.39			
	M_{13}=17.78	M_{13}=14.67			
	M_{14}=17.10	M_{14}=14.25			
	M_{15}=17.24	M_{15}=14.34			
	M_{16}=17.10	M_{16}=15.32			
	M_{17}=18.15	M_{17}=14.38			
Motor Ability F2	M_{10}=10.36	M_{10}=10.73	3.155	0.003**	0.014
	M_{11}=11.01	M_{11}=10.23			
	M_{12}=10.37	M_{12}=9.54			
	M_{13}=10.37	M_{13}=9.37			
	M_{14}=10.17	M_{14}=9.26			
	M_{15}=10.43	M_{15}=9.12			
	M_{16}=10.14	M_{16}=9.58			
	M_{17}=10.80	M_{17}=9.46			
Physical Atractiveness F3	M_{10}=9.36	M_{10}=9.62	0.823	0.568	0.004
	M_{11}=9.98	M_{11}=9.36			
	M_{12}=8.86	M_{12}=8.67			
	M_{13}=9.01	M_{13}=8.48			
	M_{14}=8.77	M_{14}=8.45			
	M_{15}=8.62	M_{15}=8.46			
	M_{16}=8.85	M_{16}= 9.07			
	M_{17}=8.35	M_{17}=8.07			
Physical Condition F4	M_{10}= 9.54	M_{10}=9.02	2.145	0.036*	0.010
	M_{11}=10.15	M_{11}=8.70			
	M_{12}=9.49	M_{12}=8.19			
	M_{13}=9.69	M_{13}=7.85			
	M_{14}=9.37	M_{14}=7.73			
	M_{15}=9.29	M_{15}=7.68			
	M_{16}=9.29	M_{16}=8.32			
	M_{17}=10.15	M_{17}=7.82			
PSPSS Total	M_{10}=47.20	M_{10}=46.38	2.133	0.038*	0.010
	M_{11}=49.85	M_{11}=44.56			
	M_{12}=46.26	M_{12}=41.77			
	M_{13}=46.86	M_{13}=40.39			
	M_{14}=45.42	M_{14}=39.70			
	M_{15}=45.59	M_{15}=39.61			
	M_{16}=45.40	M_{16}=42.26			
	M_{17}=47.45	M_{17}=39.74			

**p<.005; *p<.05

Subsequently, the results were analyzed according to the ethnicity/culture of

origin. The data reveal significant differences in the total PSPSS punctuation in favor of the berber ethnic group (*tamazight), obtaining a medium effect size (Table 3).*

Table 3. PSPSS depending on the culture of origin

PSPSS dimensions	N and Mean	*F*	*P*	η_p^2
Motor Competence F1	$N_{EUROPEAN}$= 887 M=15.87 N_{BERBER}= 910 M= 16.96 $N_{MESTIZO}$= 106 M= 16,76	16.97	0.000**	0.018
Motor Ability F2	$N_{EUROPEAN}$= 886 M= 9.80 N_{BERBER}= 908 M= 10.38 $N_{MESTIZO}$= 105 M= 10.25	25.59	0.000**	0.026
Physical Atractiveness F3	$N_{EUROPEAN}$= 887 M= 8.57 N_{BERBER}= 911 M= 9.26 $N_{MESTIZO}$= 106 M= 8.88	22.68	0.000**	0.023
Physical Condition F4	$N_{EUROPEAN}$= 883 M= 8.59 N_{BERBER}= 904 M= 9.00 $N_{MESTIZO}$= 106 M= 8.74	7.95	0.000**	0.008
PSPSS Total	$N_{EUROPEAN}$= 882 M= 42.84 N_{BERBER}= 900 M= 45.64 $N_{MESTIZO}$= 105 M= 44.69	25.44	0.000**	0.026

**p<.005

Afterwards, the sex and culture of origin variables were examined to study their influence in the physical self-concept. The data indicate that there are not significant differences between boys and girls in relation to the culture of origin, although *tamazight* boys obtained the higher punctuation (Table 4)**.** Besides, a multivariate analysis was applied according to age, culture of origin and sex, but significant differences were not found.

Table 4. PSPSS related to sex and culture of origin variables

	Ethnicity	Sex	Mean	N	*F*	*p*
F1	European	Male	16.99	442	0.011	.989
		Female	14.73	440		
	Tamazight	Male	18.18	436		
		Female	15.86	463		
	Mestizo*	Male	18.00	48		
		Female	15.73	57		
F2	European	Male	10.21	442	2.31	.099
		Female	9.9	440		
	Tamazight	Male	10.75	436		
		Female	10.04	463		
	Mestizo	Male	10.29	48		
		Female	10.22	57		
F3	European	Male	8.65	442	0.171	0.843
		Female	8,50	440		
	Tamazight	Male	9.39	436		
		Female	9.13	463		
	Mestizo	Male	8.97	48		
		Female	8.85	57		
F4	European	Male	9.18	442	0.284	0.752
		Female	8.00	440		
	Tamazight	Male	9.67	436		
		Female	8.36	463		
	Mestizo	Male	9.33	48		
		Female	8.26	57		
PSPSS	European	Male	45.05	442	0.219	0.803
		Female	40.63	440		
	Tamazight	Male	48.00	436		
		Female	43.41	463		
	Mestizo	Male	46.60	48		
		Female	43.08	57		

Mestizo*: Father/mother with a European origin and a father/mother with a *Tamazight* origin

Finally, we observed that the physical self-concept is related to sex, age and cultural origin variables, since the ANOVA test within the regression model obtained a significant result ($p < .001$), explaining 14.3% of the total variance of the model ($R2 = .143$), although the level of the association in low. Moreover, sex is the most determinant factor, being the value of the standardized regression coefficient 30.7% ($\beta = - 0.307$). After sex, age obtained a coefficient of 14.6% ($\beta = - 0.146$), and ethnic origin obtained a positive value of 17.4% ($\beta = 0.174$).

PSPSS = 51.46+ (-5.195) Sex + (-0.669) (Age) + 2.51 (Ethnicity)

Table 5. PSPSS regression coefficients

Variables	B	β	*t*
General Constant	51.46		
Sex	-5.195	-0.307	-13.054**
Age	-0.669	-0.146	-6.184**
Ethnicity	2.51	0.174	7.413**

** $p < .001$

Students attend to different centers, a fact that can negatively impact on the independence criteria, so, in order to avoid statistical errors, a multilevel analysis was applied. The results show that that only age and sex variables influence physical self-concept, being girls enrolled in a higher educational stage who score significantly lower (Table 6).

Table 6. Multilevel analysis

Fixed effects test type III			
Origin	Numerator df	Denominador df	F
Intersection	1	1885	59.339
Stage	1	1885	0.525
Sex	1	1885	1.255
Ethnicity	1	1885	1.076
Stage * Sex	1	1885	6.47
Stage * Ethnicity	1	1885	0.367
Sex * Ethnicity	1	1885	1.208
Stage * Sex * Ethnicity	1	1885	1.445

a Dependent Variable: general self-concept.

*$p < .05$

The multilevel analysis results show coefficients describing the significant associations between sex and age variables and Physical Self-Concept, although it can be influenced by other variables not included in this study.

DISCUSSION

This research aims at studying the existence of differences in the Physical Self-Concept depending on the culture of origin, sex and age with a sample composed of preadolescent and adolescent students.

Regarding the association between Physical Self-Concept and sex, the data confirm that sex is one of the variables that impact the most on the Physical Self-Concept, finding both in our study and in the research conducted by Klomsten et al. (2004) that boys score higher than girls. Likewise, Soriano, Navas and Holgado (2011) concluded that boys score higher than girls in “ability”, “condition”, “attractiveness” and “strength” dimensions, and Barnett,

Morgan, Van Beurden and Beard (2008) found that male teenagers obtained higher punctuation than girls in the "sport competence" dimension. Esnaola and Revuelta (2009), and Videra and Reigal (2013) used the Physical Self-Concept Questionnaire (PSQ) as measuring instrument, obtaining similar results to this study with different significance levels; adolescent boys scored higher than girls in all the subdomains.

Molero et al. (2010) carried out a study using the PSQ as well, although in this case the results partly differed with our conclusions; significant differences were found in "physical ability, "physical condition", "strength" and "general physical self-concept" in favor to male teenagers, but were not found in "physical attractiveness" and "general self-concept" in relation to sex. Raustorp et al. (2005) and Knowles et al. (2009) indicated that differences depending on sex are associated with the practice of physical activity.

Regarding age variable, the results indicate that the older the subject is, the higher the punctuation in all the dimensions of the PSPSS is, being this tendency more obvious in the case of females. Likeswise, Bully and Elosua (2010) indicated that females aged between 10 and 18 obtained lower punctuations in comparison with males. These results agree with the study conducted by Moreno, Hellín, González and Martínez (2011) in which males score higher than men in the "physical attractiveness" dimension.

Moreover, Mayorga et al. (2012) found that boys aged between 10 and 12 had a better self-concept and perceived competence than girls. Besides, the study reveal that boys have the highest physical self-concept level when they are 11 years old.

In contrast to our results, Carraro, Scarpa and Ventura (2010), and Rodríguez, Tarraga, Rosa, García-Cantó, Pérez-Soto, Gálvez and Tarraga (2014) denied the existence of differences in relation to sex in a sample composed of 8 to 11 years old children. These results agree with the study conducted by Janic et al. (2014), which analyzed a sample coming from Serbia and Bosnia.

The ethnic group is not a very studied variable, so there are hardly any related studies. Previous transcultural studies analyze physical self-concept, motor behavior or the individual practice of sport and physical activity (Janić et al., 2014; Piéron et al., 1999; Revuelta et al., 2016) depending on the country of origin; all of them found differences. In line with these results, our data indicate differences in the physical self-concept based on ethnicity.

The differences based on ethnicity or culture of origin are statistically significant in all dimensions and in the total score of the PSPSS, always in favor of the *Tamazigth* ethnic group compared to the European. The lowest scores in all the factors and in the global self-concept are obtained by women of European origin. It is not clear the cause of this difference since, particularly in the case of women, we might think that their religion could negatively influence the practice of physical activity, strongly linked to the physical self-concept.

A possible explanation could be that the members of this culture, who belong to a lower socioeconomic level than the members from the peninsular culture, do not have electronic elements (smartphones, TV, videogames, etc.). Therefore, they are not so sedentary and tend to go outside more often and practice physical activity, either in a regulated way or just with playmates, resulting in higher levels of physical condition and motor competence.

CONCLUSION

The data obtained in this study agree with the results described by other authors: sex, age and ethnicity variables influence physical self-concept. In our research, the factors that seem to be more relevant when predicting a high level of physical self-concept are “Physical Condition” and “Motor Competence”.

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