

revista de
EDUCACIÓN

Nº 369 JULIO-SEPTIEMBRE 2015



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DOI: 10.4438/1988-592X-RE-2015-369-290

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Abstract

Self-concept is a person's perception of their physical self in the context of their life experiences. This study is aimed at getting to know the relationship between mothers' and fathers' teenager-perceived parenting style, on one hand, and each of the dimensions of physical self-concept (physical endurance, general self-esteem, coordination, general physical self-concept, etc.) Six hundred 12-18-year-old students from 12 secondary education centres took part in this research. The «Parental Bonding Instrument» by Parker, Tupling & Brown (1979), as well as a shortened version of the «Physical Self Description Questionnaire» by Marsh, Martin & Jackson (2010), were used. Factor analysis was completed to assess response validity. Besides, multivariate and univariate variance analyses were used to identify which physical self-concept dimensions differ according to parent educational approach and teenager gender. Results show that 33.7, 16.8, 17.1 and 32.4% of the mothers were perceived by teenagers as permissive, democratic, negligent and authoritarian, respectively. Among fathers, these values were 32.0,

19.2, 15.7 and 33.1%, respectively. In general, higher values associated to the 11 dimensions of the physical self-concept were observed among boys than girls. The lowest values were found among teenagers who perceive authoritarian style in their parents' educational style. Therefore, teenagers who perceive a permissiveness parenting style are concluded to get better physical self-concept results than those who perceive an authoritative parenting style. Besides, the possible negative impact of neglecting and authoritative styles on physical self-concept is observed to be stronger among mothers than fathers. The implications that lack of affection and excessive control may have on the formation of appropriate self-concept in teenagers are discussed.

Key words: parenting styles, physical self-concept, adolescents, secondary education, self-esteem.

Resumen

El autoconcepto hace referencia al modo en que una persona se percibe y valora a sí mismo en el contexto de sus experiencias vitales. Este estudio tiene como objetivo conocer la relación del estilo educativo percibido por los adolescentes, en madres y padres, con cada una de las dimensiones del autoconcepto físico (resistencia física, autoestima general, coordinación, autoconcepto físico general, ...). Seiscientos estudiantes de entre 12 y 18 años, procedentes de doce centros de educación secundaria, participaron en esta investigación. Se emplearon el «Parental Bonding Instrument» de Parker, Tupling y Brown (1979), y la versión reducida del «Physical Self Description Questionnaire» de Marsh, Martin y Jackson (2010). Para comprobar la validez de las respuestas se llevó a cabo análisis factorial, y para determinar qué dimensiones del autoconcepto físico diferían atendiendo al estilo educativo y el sexo de los adolescentes se emplearon análisis multivariados y univariados de varianza. Los resultados muestran que el 33.7, 16.8, 17.1, y 32.4% de las madres fueron percibidas por los adolescentes como permisivas, democráticas, negligentes, y autoritarias respectivamente. En padres, el mismo orden de clasificación fue del 32.0, 19.2, 15.7, y 33.1%. En general, los valores asociados a las once dimensiones de autoconcepto físico son más elevados en los chicos que en las chicas. Las valoraciones más bajas se observan en los jóvenes que perciben en madres y padres un estilo autoritario. Se concluye que los adolescentes que perciben en sus progenitores un estilo permisivo obtienen mejores resultados de autoconcepto físico que aquellos que les atribuyen un estilo democrático; y que la posible influencia negativa asociada a un estilo negligente y democrático, sobre el autoconcepto físico, es más acusada en las madres que en los padres. Se discuten las implicaciones que la falta de afecto y el exceso de control pueden tener en la formación de un adecuado autoconcepto físico durante la adolescencia.

Palabras clave: estilos educativos parentales, autoconcepto físico, adolescentes, educación secundaria, autoestima.

Introduction

The research on the relationships between family members and behaviours that foster well-being in children and adolescents has increased over the past few decades. This is partly as a result of the high rates of overweight and obese in children and youth, along with their associated physical and psychological problems (Barr-Anderson, Robinson-O'Brien, Haines, Hannan & Neumark-Sztainer, 2010; Baskin, Thind, Affuso, Gary, LaGory & Hwang, 2013; Berge, Wall, Larson, Loth & Neumark-Sztainer, 2013).

The analysis of the association between family upbringing pattern and children's developmental achievements traditionally rely on two constructs: sensitivity and requirement, also known as 'affection' and 'control' (Baumrind, 1971; Bersabé, Fuentes & Motrico, 2001). Sensitivity is referred to the receptivity, amiability, affection and support expressed by parents. Requirement or discipline is related to the parents' degree of control, supervision and maturity demands (Martínez & García, 2007).

Four parenting styles have been described according to these two dimensions. They are viewed as a set of behaviours, attitudes and expressions that characterize communication between parents and children (Glasgow, Dornbusch, Troyer, Steinberg & Ritter, 1997; Maccoby & Martin, 1983). The four parenting styles are: authoritative (parents with high levels of sensitivity and requirement), permissive (very sensitive parents with low requirement demands), authoritarian (parents with low levels of affection and amiability, but high levels of control and supervision) and neglect (parents with low levels of sensitivity and requirement).

Research on parent-child relationships has revealed that children and adolescents who are educated in authoritative homes achieve better results in various psychosocial adjustment indices compared with peers from authoritarian, permissive and neglect homes (Steinberg, 2001). Still, several studies have recently underlined the importance of cultural differences in the influence of specific parenting styles on children. For instance, Villalobos, Cruz & Sánchez (2004) found that a sample of Mexican adolescents who attributed a authoritative or permissive parenting style to their families achieved better results in various competence indicators and psychosocial adjustment than adolescents from neglect or authoritarian homes. No differences were found between children from authoritative and

permissive homes. Related research based in Italy, Brazil and Spain also show that adolescents who perceive a permissive parental style achieve identical or higher scores on self-concept, internalization of values or perceived efficacy for involving in physical and sport activities than adolescents who perceive authoritative parental styles (García & Gracia, 2009; Martínez & García, 2007; Martínez-López, López-Leiva, Moral-García & De la Torre-Cruz, 2014).

The relations between parenting styles and self-concept dimensions in children and adolescents are a frequent research topic. However, very few studies examine the relations between parenting styles and the various components of physical self-concept. It is essential to gain a better knowledge of this relation, because self-perceptions associated with physical appearance influence participation in physical activities at a later stage, and the latter may prevent overweight or obesity.

Physical self-concept

According to Harter (1999), physical self-concept is a cognitive-social construct that reflects the attributes that an individual consciously recognizes about himself through language. The multidimensional and hierarchical model developed by Shavelson, Hubner & Stanton (1976) indicates that general self-concept is at the top of a hierarchy that includes two more specific self-concepts: one is academic and the other comprehends the physical, social and emotional dimensions.

Marsh et al. (Marsh, 1990; Marsh, Ellis, Parada, Richards & Heubeck, 2005) took Shavelson et al.'s (1976) one step further. They accepted the multidimensionality of the construct and suggested the need to assess self-concept both in general and in specific terms (Marsh, 1993; Marsh, Byrne & Shavelson, 1988). This approach resulted in the design of multidimensional scales for the assessment of physical self-concept. One of the most widespread instruments for the assessment of physical self-concept is Marsh's (1996) *Physical Self-Description Questionnaire, PSDQ*.

The assessment of physical self-concept has been used to establish associations between personal perception and participation in physical activities and sport at a later stage. Research has revealed that, favourable physical self-perception is associated with a higher probability for increased involvement and participation in physical activities and sport

(Asñi, 2002, 2005; Moreno-Murcia, Cervelló-Gimeno, Vera-Lacárcel & Ruiz-Pérez, 2007). For example, Donaldson & Ronan (2006) argue that frequency and intensity in sports among youth may be associated with their physical self-concept. It was thus suggested that the self-perception of their capacity may be associated with a lower risk of behavioural problems compared with when this capacity is judged by the physical education teacher. These authors' results show that youth reporting higher participation in physical activities and sport achieve higher values in the subdomains athletic competence and global self-esteem. Self-perceived athletic competence also retains a negative association with the scores on somatic problems, social problems, and anxious-depressive status. These associations were not observed when the student competence was judged by teachers.

Differences on physical self-concept according to gender

It has recently been shown that males and females score differently both in global measures and in the various subdomains of physical self-concept. In general, girls have worse perceptions of their physical competence, physical strength, physical ability, physical attractiveness, general physical self-concept and global self-esteem (Lau, Lee, Ransdell, Yu & Sung, 2004; Moreno, Cervelló & Moreno, 2008; Revuelta & Esnaola, 2011; Schmalz & Davison, 2006; Soriano, Navas & Holgado, 2011; Videra-García & Reigal-Garrido, 2013). This male superiority has not been recorded on the assessment of students in the higher grades of primary school or in young adult samples (Asñi, 2002; Moreno et al. 2007).

The sociocultural context has also been identified as a relevant influence on the rating of various components of physical self-concept both among males and females. According to Solmon, Lee, Belcher, Harrison & Wells (2003), when females consider a particular activity more characteristic of males than of females, the females' perceived competence to perform this activity decreases. Ruiz, Graupera, Rico & Mata (2004) have suggested the existence of different self-concepts, because males prefer competitive activities, while females prefer cooperative activities. This may arise from differences in the social interaction styles chosen by males and females, and which have probably been inculcated during family socialization.

Associations between parenting styles and physical self-concept in childhood and adolescence

The association between parenting styles and psychosocial adjustment in childhood and adolescence is well-known. By contrast, the relationship between such parenting styles and physical self-perception in children and adolescents remains unexplored, and the little research available in the field reports contradictory results. Martínez & García (2007) did not find any differences in physical self-concept according to perceived parenting styles, even if the score on this dimension was higher in adolescents from authoritative and permissive homes compared with adolescents from authoritarian and negligent homes.

García & Gracia (2009) reported that high school students who described their parents as authoritative and permissive showed better self-concepts, also in the physical subdomain, compared with their peers from authoritarian and negligent homes. Similarly, Esteve, Musitu & Lila (2005) concluded that a family socialization style based on inductive discipline showed a positive association with a family sport climate. In turn, this climate had a direct and mediated (through physical and sport motivation) influence on the physical self-concept of adolescent males and females.

Taylor, Wilson, Slater & Mohr (2012) have recently aimed at a better knowledge of the possible relationship between perceived parenting style, self-esteem and body dissatisfaction in a sample of schoolchildren (7-to-13-year-olds). The hypothesis was that both requirement and sensitivity would be positively associated with self-esteem and negatively with body dissatisfaction. The results confirmed the hypothesis only partially, because only parental sensitivity was positively associated with self-esteem.

This paper focuses on the association between mothers' and fathers' adolescent-perceived parenting style, and the subdomains that make up the physical dimension of self-concept, for a better understanding of these relationships. The hypothesis was that the males and females who perceive a permissive and authoritative parenting style would show a more favourable physical self-concept than their peers from negligent and authoritarian homes. It was also hypothesized that males would have a more positive image of themselves in most subdomains, especially in those that are characteristically masculine (endurance, athletic competence or physical strength).

Method

This is a quantitative cross-sectional study of a non-random sample of high school students.

Sample

Six hundred students from 12 high schools took part in this research. Of these, 378 (64.1%) were females and 222 (35.9%) were males. The average age of the participants was 14.44 (SD = 1.64), and the age ranged between 12 and 18. 90.5% reported living with both parents. Regarding the highest education level, the following percentages were obtained for mothers and fathers, respectively: Uneducated (3.10% and 6.72%), primary education (51.8% and 49.12%), job training (13.52% and 19.32%) secondary education and bachelor's degree (15.77% and 11.99%), university degree (15.77% and 12.86%).

Instruments

- An *ad hoc* sociodemographic questionnaire. This questionnaire collected data on gender, age, family structure and highest parental educational level.
- Calculation of body mass index (BMI). The weight and the height of the participants were recorded with a type-B class-III ASIMED weight scale and a portable SECA 214 height scale. All measurements were taken with participants wearing light clothes and no shoes. Weight and height were used for The BMI is the ratio of the weight (kg) to the height (m²).
- *Parental Bonding Instrument*, PBI (Parker, Tupling & Brown, 1979). The PBI is a self-report measure designed to assess the daughters' and sons' perception of their relationships with mothers, fathers or main carers. It consists of 25 items with a five-point Likert scale. This instrument records the frequency with which boys and girls consider their parents perform certain actions, ranging from 'never' (value: one) to 'always' (value: five). The option 'never' was recorded as 1,

while the option 'always' was recorded as 5. The PBI comprehends two dimensions: affection and control. The dimension 'affection' informs about the parents' care and support perceived by their children (e.g. 'She cares for me'). The dimension 'control' represents the degree to which parents regulate and supervise their children's activities (e.g. 'S/He lets me do things what I want'). An average value is obtained for each dimension by dividing the total sum of the scores between the number of items. Thus, a high value signals a high rate of affection and control.

The instrument used in this study differed from the original PBI in two respects. Firstly, all items were in the present tense instead of in the past tense, and, secondly, nine of the questionnaire items originally written as negative statements were presented as affirmative statements to avoid the possibility of confusion caused by the response options available for each statement (specifically, the option 'never' before a negative statement could be understood as a double negative meaning 'always'). The P-BI version used here contained 20 items, 12 for the dimension 'affection' and 8 for the dimension 'control'. The items of the dimension 'control' scored inversely, i.e. a high score means high control. Reliability, as calculated by Cronbach's alpha, was .92 and .95 (for mothers and fathers, respectively) in the dimension 'affection', and .78 and .82 in the dimension 'control'.

- *Physical Self-Description Questionnaire – Short Form* (Marsh, Martin & Jackson, 2010). Physical self-concept was measured with the short version of PSDQ-S (Marsh et al., 2010). This instrument contains 40 items that assess 9 physical self-concept specific components and 2 additional dimensions, namely general physical self-concept and global self-esteem. Each item is a declarative statement, where the participants express on a six-point scale their agreement or the degree to which the statement represents the concept they have of themselves, ranging from 'totally false' to 'totally true'. Each factor contains at least three items, and their reliability values are .80 or above.

Reliability, as calculated by Cronbach's alpha, was as follows: physical activity, defined as the participant's perception of themselves as an active person ('I frequently do activities or sports that increase my breathing

rate'), .89; body fat, defined as the participant's perception of their possible obesity ('My waist is too wide'), .84; endurance, defined as the participant's perception of their capacity to go long distances without stopping and feel tired ('I can be physically active for a long time without feeling tired'), .87; physical health, defined as the participant's perception of their general health status and recovery after illness ('I am sick so often that I can not do all I would like'), .84; physical strength, defined as the participant's perception of their muscular and physical strength ('I am a strong person'), .81; general self-esteem, defined as the participant's general feeling about themselves ('Overall, I am proud of myself'), .71; physical appearance, defined as the participant's perception of their physical attractiveness ('I'm more attractive than many of my friends'), .84; motor coordination, defined as the participant's perception of their, harmony and elegance of movement ('It is easy to control my body movements'), .77; flexibility, defined as the participant's perception of their ability to flex their body or any body part ('I have a good body flexibility'), .92; athletic competence, defined as the participant's perception of their condition and ability to do physical activity or sports ('I consider myself good at most sports'), .86; and general physical self-concept ('I feel good about myself and about what I can do at the physical level'), .79. A high score is equated with a good self-perception in the various dimensions.

Procedure

A verbal and written description of the nature and purpose of this piece of research was made available to the participants and their parents and legal guardians for their consent. The authorization of the participants' school headmasters and PE teachers was also obtained. The study protocol was approved by the Ethics Committee of the University of Jaén, Spain. The participant names were coded for anonymity and confidentiality. The questionnaires were run and the weight and height were measured during PE classes under the researchers' supervision. The research design is in accordance with the Spanish legal framework for clinical research on humans (Real Decreto 561/1993 on clinical trials), the personal data protection law (Ley Orgánica 15/1999) and the standards of the Declaration of Helsinki (2008 version).

Statistical analysis

The parameters are presented as mean and standard deviation. The validity of the questionnaire answers was checked with factor analysis using the principal components method and varimax rotation. The identification of the physical self-concept dimensions that differ according to the parenting style relied on multivariate and univariate variance analysis. The dependent measures were the mean scores achieved in the 11 physical self-concept dimensions, and the independent variables were the attributed parenting style, and gender. As the perception of physical reality and body is related with body measures or parameters, BMI was included as covariate. The Bonferroni correction was used for subsequent comparisons, dividing the probability standard value (.05) by the number of possible comparisons of the independent variable levels taken two to two (six in total). The resulting statistical significance was .008. SPSS version 19.0 for Windows (SPSS Inc., Chicago) was used for the statistical analysis.

Results

Parenting styles

Before examining the relationship between parenting styles and physical self-concept, a factorial analysis was performed. This analysis showed a two-factor solution. Items were retained if the factor loading was the same or .35 or higher. This analysis was intended to identify the degree to which the factor structure of the original questionnaire was replicated. The results showed that five items (8, 9, 10, 19 and 23) did not show suitable factor loadings. These items were removed for later analysis. Table one shows the percentage of explained variance for each factor, the drafting of the modified items and its associated factor loadings.

TABLE I. Factorial analysis results of the PBI modified version for judgments on mother and father, respectively.

	Maternal opinion		Paternal opinion	
	Affection (37.3%)	Control (12.4%)	Affection (45.8%)	Control (12.8%)
6.- S/he is affectionate with me.	.79		.83	
16.- S/he helps me feel loved.	.78		.83	
11.- S/he enjoys talking to me.	.77		.82	
17.- S/he makes me feel better when I am upset.	.77		.82	
12.- S/he smiles at me frequently.	.75		.79	
18.- S/he speaks a lot with me.	.75		.80	
4.- S/he cares for me.	.72		.81	
5.- S/he understands my problems and my concerns.	.70		.76	
1.- S/he talks to me warmly and in a friendly way.	.68		.78	
2.- S/he helps me when I need it.	.65		.77	
24.- S/he praises me frequently.	.64		.73	
14.- S/he understands what I want or need.	.60		.65	
21.- S/he gives me as much freedom as I want.		.80		.80
3.- S/he lets me do what I prefer.		.73		.67
22.- S/he lets me go out often, when I want.		.72		.75
15.- S/he lets me make my own decisions.		.69		.74
7.- S/he likes me to make my own decisions.		.58		.65
25.- S/he lets me wear what I want.		.51		.59
13.- S/he tends to indulge me.		.44		.41
20.- S/he thinks that I can take care of myself.		.39		.55

The classification of parents according to parenting styles relies on the median value obtained for the dimensions affection and control regarding the opinion expressed toward mothers (4.41 and 2.37) and fathers (4.16 and 2.25), respectively. Based on these values, mothers and fathers were classified as one of four parenting styles (negligent, permissive, authoritarian or authoritative), according to whether the attributed values were higher or lower than the median values. Thus, scores below the median in both dimensions led to a negligent style perception, while scores above the median were associated with a authoritative style perception. Parents with scores higher than the median for affection but lower for control were classified as permissive. By contrast, parents with scores lower than the median for affection but higher for control were classified as authoritarian. This procedure has been used in previous research (De la Torre, Casanova, García, Carpio & Cerezo, 2011; García & Gracia, 2010; Martínez-López et al., 2014; Rodrigues, Veiga, Fuentes & García, 2013). Frequency distributions of maternal and paternal parenting

styles were as follows: regarding mothers, 182 were permissive (33.7%), 91 authoritative (16.8%), 92 negligent (17.1%), and 175 authoritative (32.4%); regarding fathers, 179 were permissive (32.0%), 107 authoritative (19.2%), 88 negligent (15.7%), and 185 authoritative (33.1%).

Descriptive statistics

Tables II and III show mean values and standard deviations of the variables according to perceived maternal and paternal style. High scores on these dimensions mean favourable self-perceptions.

TABLE II. Mean and standard deviations (in parentheses) in different subdomains of physical self-concepts according to perceived maternal style.

	Perceived maternal style			
	Permissive (n = 182)	Authoritative (n = 91)	Negligent (n = 92)	Authoritarian (n = 175)
Physical Activity	4.06 ^a (1.49)	4.16 ^a (1.49)	3.78 ^{ab} (1.43)	3.56 ^b (1.46)
Body Fat	4.74 (1.33)	5.03 (1.12)	4.54 (1.39)	4.65 (1.19)
Physical Endurance	4.24 ^a (1.28)	4.03 ^{ab} (1.27)	3.90 ^{ab} (1.27)	3.82 ^b (1.28)
Health	4.99 (1.14)	5.16 (0.97)	4.95 (0.97)	4.99 (0.93)
Physical Strength	4.13 ^a (1.12)	4.13 ^{ab} (1.19)	3.66 ^b (1.17)	3.64 ^c (1.24)
General Self-Esteem	4.59 ^a (.74)	4.57 ^{ab} (.87)	4.24 ^b (.85)	4.13 ^c (.83)
Physical Appearance	4.29 ^a (1.11)	4.04 ^{ab} (1.27)	4.06 ^{ab} (1.08)	3.76 ^b (1.25)
Coordination	4.68 ^a (.97)	4.56 ^{ab} (.98)	4.27 ^b (.95)	4.24 ^b (1.09)
Flexibility	4.12 (1.30)	3.84 (1.39)	3.76 (1.30)	3.67 (1.40)
Athletic Competence	4.12 (1.24)	4.18 (1.37)	3.71 (1.32)	3.74 (1.33)
Physical Self-Concept	4.97 ^a (.93)	4.94 ^{ab} (1.01)	4.47 ^{ab} (1.11)	4.33 ^c (1.15)

Differences between groups for each self-concept dimension are signalled by different superscript.

TABLE III. Mean and standard deviation (in parentheses) in different subdomains of physical self-concepts according to perceived paternal style.

	Perceived maternal style			
	Permissive (n = 182)	Authoritative (n = 91)	Negligent (n = 92)	Authoritarian (n = 175)
Physical Activity	4.06 ^a (1.49)	4.16 ^a (1.49)	3.78 ^{ab} (1.43)	3.56 ^b (1.46)
Body Fat	4.74 (1.33)	5.03 (1.12)	4.54 (1.39)	4.65 (1.19)
Physical Endurance	4.24 ^a (1.28)	4.03 ^{ab} (1.27)	3.90 ^{ab} (1.27)	3.82 ^b (1.28)
Health	4.99 (1.14)	5.16 (0.97)	4.95 (0.97)	4.99 (0.93)
Physical Strength	4.13 ^a (1.12)	4.13 ^{ab} (1.19)	3.66 ^b (1.17)	3.64 ^c (1.24)
General Self-Esteem	4.59 ^a (.74)	4.57 ^{ab} (.87)	4.24 ^b (.85)	4.13 ^c (.83)
Physical Appearance	4.29 ^a (1.11)	4.04 ^{ab} (1.27)	4.06 ^{ab} (1.08)	3.76 ^b (1.25)
Coordination	4.68 ^a (.97)	4.56 ^{ab} (.98)	4.27 ^b (.95)	4.24 ^b (1.09)
Flexibility	4.12 (1.30)	3.84 (1.39)	3.76 (1.30)	3.67 (1.40)
Athletic Competence	4.12 (1.24)	4.18 (1.37)	3.71 (1.32)	3.74 (1.33)
Physical Self-Concept	4.97 ^a (.93)	4.94 ^{ab} (1.01)	4.47 ^{ab} (1.11)	4.33 ^c (1.15)

Differences between groups for each self-concept dimension are signalled by different superscript.

Multivariate analysis of variance

Two multivariate analysis of variance (4x2) were performed. Parental style and adolescent gender were used as independent variables. The dependent measures were the mean scores achieved in the 11 physical self-concept dimensions. The first analysis was limited to the perception of maternal style. The Box's M test for equality of covariance matrices observed in the dependent variables revealed significant statistic differences ($p < .05$). Thus, the contrast statistic used was Pillai's Trace.

After adjusting the BMI influence, $F(11, 521) = 24.26, p < .000, \eta^2 = .33$, a significant main effect was obtained for attributed maternal style, $V = .15, F(33, 1569) = 2.62, p < .000, \eta^2 = .05$, and for the 's participant gender, $V = .22, F(11, 521) = 13.91, p < .000, \eta^2 = .22$. The interaction between maternal style and gender was not significant, $V = .04, F(33, 1605) = .79, p > .05$.

The second analysis used parenting style as an independent variable. In addition to the covariate effect, $F(11, 540) = 27.00, p < .000, \eta^2 = .36$, a main effect of attributed parenting style $V = .17, F(33, 1626) = 2.90, p < .000, \eta^2 = .06$, and participant gender, $V = .22, F(11, 549) = 13.45, p < .000, \eta^2 = .22$ was observed. The interaction between parenting style and gender was not significant, $V = .08, F(33, 1653) = 1.33, p > .05$.

Univariate analysis and post-hoc comparisons

Several univariate analyses of variance were performed to identify what dimensions of physical self-concept differed in the maternal parenting style. Differences in seven subdomains were found: physical activity, $F(3, 531) = 4.37, p < .01, \eta^2 = .02$; endurance, $F(3, 531) = 3.61, p < .05, \eta^2 = .02$; physical strength, $F(3, 531) = 7.95, p < .000, \eta^2 = .04$; self-esteem, $F(3, 531) = 10.72, p < .000, \eta^2 = .06$; physical appearance, $F(3, 531) = 5.53, p < .01, \eta^2 = .03$; coordination, $F(3, 531) = 7.04, p < .000, \eta^2 = .04$; physical self-concept, $F(3, 531) = 14.29, p < .000, \eta^2 = .07$.

The males and females who perceived a permissive paternal style scored higher on physical strength, global self-esteem, coordination and physical self-concept than those who attributed to their mothers a negligent or authoritative parenting style. Similarly, the permissive style was associated with higher values in physical activity, endurance and physical appearance compared to the authoritarian style. Finally, the participants who considered their mothers authoritative scored higher on physical activity, strength, global self-esteem and physical self-concept than their peers who considered their mothers authoritative.

Regarding paternal style, significant differences were found in the following dimensions: physical activity, $F(3, 550) = 7.50, p < .000, \eta^2 = .04$; endurance, $F(3, 550) = 4.95, p < .005, \eta^2 = .03$; physical strength, $F(3, 550) = 6.41, p < .005, \eta^2 = .03$; global self-esteem, $F(3, 550) = 10.62, p < .000, \eta^2 = .06$; coordination, $F(3, 550) = 12.41, p < .000, \eta^2 = .06$; athletic

competence, $F(3, 550) = 6.85$, $p < .000$, $\eta^2 = .04$, and physical self-concept, $F(3, 550) = 12.49$, $p < .000$, $\eta^2 = .06$.

Subsequent comparisons revealed that the males and females who attributed a permissive or authoritative style to their parents scored higher on physical activity, strength, global self-esteem, coordination, and athletic competence than those who perceived an authoritarian parental style. It was also observed that resistance values were higher in the participants who considered their parents permissive compared with those who considered them authoritative. Finally, physical self-concept was more positive in the participants who attributed a permissive style to their parents compared with the participants who attributed a negligent and authoritarian style to their parents. It was also observed that physical self-concept was higher in participants with authoritative parents compared with participants with authoritarian parents.

The main effect analysis of participant gender revealed differences in the following dimensions: physical activity, $F(1, 550) = 50.73$, $p < .000$, $\eta^2 = .08$ (3.46 vs 4.48); endurance, $F(1, 550) = 57.11$, $p < .000$, $\eta^2 = .09$ (3.67 vs. 4.57); health, $F(1, 550) = 8.40$, $p < .005$, $\eta^2 = .02$ (5.16 vs. 4.84); strength, $F(1, 550) = 42.48$, $p < .000$, $\eta^2 = .08$ (3.61 vs. 4.36); global self-esteem, $F(1, 550) = 6.99$, $p < .01$, $\eta^2 = .01$ (4.27 vs. 4.52); physical appearance, $F(1, 550) = 9.91$, $p < .005$, $\eta^2 = .02$ (3.85 vs. 4.24); coordination, $F(1, 550) = 8.52$, $p < .005$, $\eta^2 = .02$ (4.31 vs. 4.66); athletic competence, $F(1, 550) = 67.82$, $p < .000$, $\eta^2 = .11$ (3.57 vs. 4.52), and physical self-concept, $F(1, 550) = 19.00$, $p < .000$, $\eta^2 = .03$ (4.52 vs. 4.90). All the scores were higher in males, except for the dimension 'health'.

Discussion and conclusions

This paper analyses the relationship between parental styles and physical self-concept perception in a sample of adolescents. The results show that the self-description of the participants who perceive a permissive maternal style is more positive in dimensions related to physical strength, general self-concept, coordination, and physical self-concept compared with that of their peers who perceive negligent and authoritarian maternal styles. Except for the dimensions body fat and athletic competence, an authoritarian maternal style is associated with more negative self-assessments. Regarding the perception of fathers, a authoritative or

permissive style is associated with positive assessments in physical activity, physical strength, general self-concept, coordination, athletic competence and physical self-concept. By contrast with what was found in mothers, a negligent style in fathers is only more harmful in the physical self-concept subdomain compared with the permissive style.

These results agree in part with the results found by De la Torre et al. (2011), García & Gracia (2009), Martínez & García (2007), Martínez-López, et al. (2014) and Villalobos et al. (2004), where it is suggested that adolescents educated in permissive homes achieve the same or even better results on psychosocial adjustment measures than those educated in authoritative homes. The results obtained in this paper are also in line with those obtained by Taylor et al. (2012), where the perception of high parental sensitivity (which occurs in the authoritative and the permissive style) is positively associated with the perceived self-esteem in a preadolescent group, while requirement is not. These results join the growing body of evidence that question the authoritative style as the best parenting style, regardless of cultural context or ethnic group (Glasgow et al., 1997; Rothrauff, Cooney & An, 2009; Steinberg, 2001). Also, and regardless of the parent's gender, virtually all the lowest scores were attributed to participants from authoritarian homes. The perception of high supervision and control along with a low sensitivity and amiability attributed to either parent is associated with a more negative construction of physical identity.

Another relevant point is that the meaning attributed to a negligent and authoritative parenting style is not identical when considered in relation to mothers or fathers. Actually, the adolescent's self-perception of such characteristics as strength, global self-esteem, physical self-concept and coordination is as negative when the mother is considered negligent and when she is considered authoritarian. By contrast, the attribution of a negligent style to fathers may have a more aseptic effect on competence and physical appearance. This is because, except for physical self-concept, no differences were observed in other subdomains according to perceived style. These results suggest that low levels of affection and amiability (which occurs in the negligent and the authoritarian style) have a differential effect on the most negative body image according to whether the participants refer to mother or father. In this sense, the perception of a authoritative parenting style seems more positive for the various physical self-concept dimensions in fathers than

in mothers. The perception of high control seems to benefit body image more if it is the father's control and, when both fathers and mothers are considered affectionate, loving and sensitive.

Finally, male participants attributed themselves a higher endurance, strength, coordination and athletic competence. They also had better physical appearance, physical self-concept and global self-esteem than female participants. These results are in line with those obtained by Lau et al., (2004), Revuelta & Esnaola (2011) or Videra-García & Reigal-Garrido (2013). Only the health subdomain was more optimal in female than in male participants. A number of reasons have been pointed out for these differences. Revuelta & Esnaola (2011) argued that the acquisition of gender stereotypes is a function of the socialization process that takes place within the family. Society expects feminine and slim bodies in females instead of muscular bodies as a result of the participation in physical and sport activities. Fathers and mothers establish different types of relations, and supply different stimuli and different materials for sons and daughters, thus exposing them to alternative activities according to their gender roles, and conditioning their own physical self-perception.

Balaguer, Atienza & Duda (2012) have recently reported that females scored lower than males in the subdomains athletic competence and physical appearance regardless of their physical activity level (sedentary, low, moderate and high). Physical self-perception is positively related with the frequency of physical activity. Yet, this association seems to be true only in males because, unlike in females, their physical activity is supported by their peers and their significant adults. Females do not receive the support that their male peers receive when they do sports. This may be one reason for the females' limited interest in physical activity as they grow older and, as a result, a more negative assessment of their body image.

Other authors, e.g. Schmalz & Davison (2006), suggested that the physical self-concept of children and adolescent could be more positive among girls, if they became involved in physical activities and sports characterized as proper to a group who does activities of their own gender. Only physical strength dimension showed higher scores in girls who did activities associated to both genders. This finding may reveal that different assessments of physical self-concept between males and females cannot be explained only in terms of social stereotypes.

As in most research fields, this paper has limitations and the findings presented here must be interpreted with caution. The first type of limitations stems from the use of self-report measures, especially as concerns the inherent difficulty to verify the accuracy of the answers given. This piece of research guaranteed anonymous participation in an attempt to minimize this limitation. Secondly, responses came from only one informant (son / daughter). It would be relevant to have also the point of view of parents and children about the parental relationships at home. Thirdly, a cross-sectional design was used, so causal relations cannot be established between parental actions and the participant's physical self-concept. A longitudinal designs could solve this limitation.

It is concluded that adolescents who perceive a permissive parental style achieve better physical self-concept results (endurance, general self-esteem, coordination and general physical self-concept) compared with those who perceive a authoritative parental style. The lowest scores of physical self-concept appear in the participants who perceive an authoritarian parental style. The possible negative influence associated to a negligent and authoritative physical self-concept style is higher in mothers than in fathers. Physical self-concept values are higher in males, except for the dimension health, which is higher in females. We believe that lack of affection, support and sensitivity, along with an excessive control or parental supervision, are associated with a worse body image in adolescents. This result may have important implications. If, as has been argued, physical self-concept increases the practice of physical activities and health care and is related with the sensitivity and requirement attributed to parents, interventions encouraging physical activity should focus not only on these behaviours. It is also necessary to study psychological aspects like physical self-concept, which may be conditioned by relationships between parent and children at home.

The prospective of this study is based on contrasting the judgment of parents and children of their relationships at home (congruence or incongruence in the perception of the parenting style) and what relationships predict the physical self-concept in children more accurately. Both objective and subjective measures of performance and physical activity can be used to find out whether parental style and physical self-perception are related with the former.

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NIPO línea: 030-15-016-X

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ISSN línea: 1988-592X 0034-8082

ISSN papel: 0034-8082

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