

Parental influence on adolescent adherence to physical-sport practice

Influencia parental de la adherencia de práctica físico-deportiva en adolescentes

**Eva Sanz-Arazuri, *María Ángeles Valdemoros-San-Emeterio, *Ana Ponce-De-León-Elizondo, **Antonio Baena-Extremera

*Universidad de La Rioja (España), **Universidad de Granada (España)

Abstract. The aims of this paper were: a) to verify whether the importance granted by parents to leisure physical activity (PA), parental PA, and the parents' educational level enhance or weaken adherence to PA in their physically active children and, b) to explain the possible interference of such parental factors on adolescents' adherence to PA. Participants were 1978 children, aged 12 to 16 years. A quantitative and qualitative triangulation technique was employed, using a questionnaire (MACOFYD) and four discussion groups. Descriptive, bivariate, and multinomial regression analyses were employed. Conclusions: it is essential for parents not only to grant considerable importance to PA but also to let their children know about their appraisal. The fact that parents grant more importance to other issues, such as studies, than to motor activity does not reduce the likelihood of their children's consolidating their PA.

Keywords: adolescence, parents, behaviour, physical activity, leisure.

Resumen. El objetivo de este trabajo es: a) comprobar si la importancia otorgada a la actividad física (AF) de ocio por los padres, la AF de estos, y su nivel educativo tiene un impacto en la consolidación o debilitamiento de la adherencia de la AF en sus hijos, b) explicar cómo y en qué medida estos factores interfieren con la adhesión de los adolescentes a la AF. La muestra fue de 1978 niños entre 12 y 16 años. Se utilizó una técnica de triangulación cuantitativa y cualitativa, mediante un cuestionario (MACOFYD) y cuatro grupos de discusión. Se realizó un análisis descriptivo, bivariado y de regresión multinomial. Se concluye que es esencial que tanto padres como hijos otorguen bastante importancia a esta práctica; el hecho de que los padres otorguen más importancia a otros temas, como los estudios, no reduce la probabilidad de que los hijos se adhieran y consoliden su AF.

Palabras clave: adolescencia, padres, comportamiento, actividad física, ocio.

Introduction

Prior studies reveal parental influence, both positive and negative, in children's motivation towards physical activity (Alethia, Cuevas, Cortés, & Morales, 2016; Ruiz-Risueño & Ruiz-Juan, 2015). This influence is seen, on the one hand, in the model provided by the family environment and, on the other, in the family's support, a result of its members' attitude towards physical activity (Pierón & Ruiz Juan, 2013). Given that health promotion facilitates maintaining long-term physically active lifestyles, it is considered essential to involve both the parents to achieve the physiological, psychological and social benefits derived from the practice of physical activity (López-Pastor, Brunicardi, Manrique, & Monjas, 2016).

A large body of literature has documented that regular physical activity (PA) fosters longevity, improves quality of life by reducing disease (Ribeiro, Araújo, Andaki, José & Lacerda, 2013; Santos, Ribeiro, Dos Santos & Lacerda, 2013), and promotes psychological health (Warburton, Nicol & Bredin, 2006). Diverse studies have examined PA levels and sedentary behaviours in childhood, adolescence and adulthood (Abarca-Sos, Zaragoza, Generelo & Julián, 2010; Castillo & Giménez, 2011; Gómez-López, Granero-Gallegos, Baena-Extremera & Ruiz-Juan, 2011; Serra, Generelo & Zaragoza, 2011; Westerståhl, Barnekow-Bergkvist & Jansson, 2005). It has been shown that persistent participation in PA increases the probability of higher levels of subsequent PA later in life (Santos, Gomes & Mota, 2005). Moreover, it has been acknowledged that school settings, friends and family (Cecchini, Méndez & Muñiz, 2002; Coleman, Cox & Roker, 2008; Taymoori, Rhodes & Berry, 2010) may provide an especially important context to increase student participation in PA. Armour, Sandford and Duncombe (2013) analyzed how PA programmes can be designed in the future to maximise youth PA. However, to promote youth PA more effectively, it is necessary to understand the factors from each of these contexts that may influence participation.

This study focuses on parents, considered as agents who influence their children's PA. Many scientific works indicate three main factors that can influence children's dropout, inactivity, initiation, or adherence to PA: the importance granted by the parents to leisure PA, parental PA, and the parents' educational level (Edo, 2004; Gorely, Atkin, Biddle

& Marshall, 2009; Madsen, McCulloch & Crawford, 2009; Pahkala et al., 2007; Sanz, Ponce-de-León & Valdemoros, 2012; Seabra, Mendoça, Thomis, Malina & Maia, 2011; Van Der Horst, Paw, Twisk & Van Mechelen, 2007).

Parents' interest in PA and its importance for them are significantly related to their children's PA (Edo, 2004; Madsen, McCulloch & Crawford, 2009). For instance, when parents grant priority to academic success to the detriment of PA, there is a higher tendency for youngsters to abandon an active lifestyle (Daskapan, Handan & Eker, 2006). However, when studying the predictors of Spanish adolescents' inactivity, Sanz et al. (2012) noted that if physically inactive children perceive that their parents grant «some» or «much» importance to PA, they are twice as likely to engage in PA, in contrast to children who are unaware of their parents' appraisal of PA. In contrast, if adolescents think that PA has «little» or «no» importance for their parents, this does not affect PA consolidation or their changing from inactivity to activity. With regard to the habit of PA, some studies verify that parents' desire for their children's active lifestyle and the aid they provide determine adolescents' engagement in leisure PA (Ommundsen, Klasson & Andersen, 2006).

On the one hand, various investigations have reported that parents' lifestyle (active vs. inactive) is a predictor of adolescent PA (Pahkala et al., 2007; Sanz et al., 2012; Seabra et al., 2011; Toftegaard-Stockel, Nielsen, Ibsen & Andersen, 2011). Regarding initiation of PA, parent participation in PA increases the probability of adolescent initiation of PA (Edo, 2004; Haa, Macdonald & Pang, 2010). In this sense, Mota and Silva (1999) note that the mother's PA, but not the father's, is related to children initiating PA.

With regard to adherence, some authors (Pahkala et al., 2007; Seabra et al., 2011; Toftegaard-Stockel et al., 2011; Shannon & Shaw, 2008) confirmed that, when parents exercised, the youngsters consolidated the PA they had already initiated, and these authors emphasized that the mother's PA had more influence than the father's.

Likewise, a large quantity of studies analyzes the relation between the parents' educational level and their children's leisure PA (Sanz et al., 2012). Investigators do not seem to reach a consensus about this, as some works indicate a significant association between youth PA in both genders and both parents' educational level (Gordon-Larsen, McMurray & Popkin, 2000; Gorely, Atkin, Biddle & Marshall, 2009; Van Der Horst, Paw, Twisk & Van Mechelen, 2007), whereas other works report that the educational level of only one parent—father or mother—is related to the leisure PA of the children of both genders or of only one gender (Rangul et al., 2011; Toftegaard-Stockel et al., 2011). In fact,

some investigations indicate that there is no significant link between the parents' cultural level and the youngsters' type of leisure (Mota & Silva, 1999; Sanz et al., 2012).

In keeping with this, the hypothesis was: parental factors influencing the physical inactivity of adolescent children do not affect in equal or equal measure the physical-sports adherence of the children. To demonstrate this hypothesis, the goal of this investigation is: firstly, to verify whether the importance granted by parents to leisure PA, parental PA, and the parents' educational level enhance or weaken adherence to PA in their physically active children. This study aims to continue the research published by Sanz et al. (2012) and provide a new explanation of the interference of such parental factors in adolescents' adherence to PA.

Methods

We performed methodological triangulation using a quantitative technique on the data collected with the MACOFYD questionnaire (Ponce-de-León, Sanz, Ramos & Valdemoros, 2010), and a qualitative technique on the data from the discussion groups.

Quantitative Technique

Participants

The study population was 11259 students. The sample was selected with a 95% margin of confidence and a sampling error of ± 2 sigmas, corresponding to a sample 1978 students. The sampling procedure employed was stratified clusters, with proportional allocation of the first stage units, and random sampling for the second (study centre) and third stages (class groups). The sample included 51.7% of females and 48.3% of males, aged between 12 and 16 years (mean age 14.58+1.248). All participants were enrolled in one of the four levels of Compulsory Secondary Education in Spanish schools.

Instrument

The Motivations, Attitudes, and Behaviour in Physical Activity and Sports in Leisure Questionnaire (MACOFYD; Ponce-de-León, Sanz, Ramos & Valdemoros, 2010), validated and made up of a total of 39 items, was the measuring instrument employed in the quantitative process.

To determine the predictors of adolescents' adherence to PA, we used Items 2, 8, 18, 22, and 28, which provide information about the 7 variables of this study (Sanz et al., 2012). These variables are: adolescents' PA situation, participants' gender, the educational level of both parents, the father's and the mother's PA situation, and the importance granted by the parents to PA.

The validity (content validity and construct validity) of the instrument was established through two pilot studies in real conditions and the judgment of six university experts in PA and sports (Osterlind, 1989). The items had high reliability as measured with Cronbach's alpha ($\alpha = .721$).

Procedure

Students were informed of the purpose of the study and their rights as participants, and that their responses to the instrument would be anonymous. The classes were selected randomly and the test was collectively administered to all the students in their classrooms during the normal school schedule. Prior consent was obtained from the corresponding teacher, the headmaster of the school, and the Ethics Committee of the university. The questionnaire required about 40-50 minutes to complete.

Data Analysis

The data of this study were analyzed with the SPSS 19.0 statistical package. Cramer's *V* coefficient was calculated to determine the magnitude and direction of the association between adolescents' PA and each one of the remaining variables. Multinomial regression analysis was then

conducted to detect the parental factors that may affect adolescents' adherence to PA. The level of significance was $p < .05$ in all cases.

Qualitative technique

Participants

In order to determine participants' perception of parental influence on children's PA practice, focus groups were carried out. A total of 41 individuals from four collectives participated in this section: 10 parents, 10 Physical Education (PE) teachers, 10 teachers of subjects other than Physical Education, and 11 students of Compulsory Secondary Education. All of them were invited to participate voluntarily in these focus groups.

Instrument

We employed the focus group technique with all four collectives. Participant selection was structural, and the diverse groups were formed according to membership in that group. The following criteria were taken into account: homogeneity (with regard to the educational collective), heterogeneity (as a function of gender), balancing the number of members according to provenance (capital or the rest of the province), and balancing the type of centre (public and subsidized).

A system of categories was created for the analysis. The category «Influence of social agents on adolescents' PA» and its subcategories were used to determine the diverse educational and social agents' perception of parental influence on adolescents' adherence to PA (Sanz et al., 2012).

Procedure

A follow-up protocol was created to carry out the focus groups during the month of May, 2008 according with the paper of Sanz et al., (2012). In order to avoid influencing participants' responses, the protocol includes 8 general questions that do not explicitly mention the object of the study.

To optimize reliability, a single investigator was in charge of data analysis, and duration of the focus groups was flexible, terminating the discussion when the group was saturated or when the redundancy of the discourse became evident. Lastly, all participants were observed to determine possible changes of opinions about any target category.

Data Analysis

The narratives arising in these focus groups were analyzed using the NVIVO 9 computer package.

The categories and subcategories of analysis were validated by the judgment of five university experts in Educational and Physical Activity Sciences, who identified the textual units of one of the discussion groups (PE teachers), recording them in the corresponding categories and subcategories. Cohen's Kappa formula (Cohen, 1960) was applied to measure inter-rater reliability. According to the Kappa value, the agreement measures between the main investigator and each one of the experts were positive, as the indexes reflect moderate, good, and very good degrees of agreement. With regard to the degree of agreement with the rest of the experts, in no case were the scores lower than .6, so the process of category validation of the present investigation is considered satisfactory.

Results

The results of this study were highly positive, as we confirmed that three out of four youngsters adhere to PA. These students, who report currently practicing PA and state that they have been practicing in the past, accumulate an average of 8.65+2.44 years of PA experience in their leisure time. Of them, 57% have been practicing PA for more than 8 years, and 23% have practiced PA in their free time for more than 10 years.

Bivariate relational analysis detected significant differences in PA as a function of gender (Cramer's *V* = .264, $p < .001$), the importance

parents grant to PA (Cramer's $V = .213, p < .001$), the father's PA (Cramer's $V = .164, p < .001$), and the mother's PA (Cramer's $V = .213, p < .001$). However, the adolescents' PA was not significantly associated either with the father's or the mother's educational level.

With reference to youngsters who adhere to PA, the results of multinomial regression analysis revealed that adolescents' perception that their parents grant «much» or «very much» importance to PA (odds ratio [OR] = 6.145 and 4.935, respectively) strongly and positively affects their adherence to PA.

In contrast, being female ($OR = .408$) and having a mother who was never physically active ($OR = .284$) and a father who had never performed PA ($OR = .238$) decreased—albeit slightly—the adolescents' likelihood of adhering to PA in their leisure time (Table 1).

Table 1.
Results of Multinomial Regression Analysis

Variables	Reference Category	B	SE (B)	Odds Ratio [95% CI]	p
Father's physical-sport situation: Does not practice/did not use to practice	Practices and used to practice	-1.435	.468	.238 [.095, .595]	< .005
Mother's physical-sport situation: Does not practice/ did not use to practice	Practices and used to practice	-1.259	.515	.284 [.104, .779]	< .05
Gender	Male	-0.896	.284	.408 [.234, .713]	< .005
The importance granted to physical-sport activities	Does not know how to respond				
Much		1.816	.743	6.145 [1.433, 26.355]	< .05
Some		1.596	.740	4.935 [1.158, 21.024]	< .05
Constant		4.603	.784		

The data reveal that adolescents are six times more likely to adhere to PA if they think that their parents grant «much» importance to motor activities, in contrast to adolescents who are unaware of the value their parents place on these activities. This likelihood drops to five as the importance granted by parents to PA increases. However, the fact that adolescents think that their parents grant «little» or «no» importance to PA does not affect their adherence to PA.

With regard to factors that reduce the probability of consolidating adolescents' PA, it is noteworthy that a young girl is .4 times less likely to remain physically active than a young boy. Likewise, the likelihood of adolescents' continuing to perform PA is .238 times lower if the father never performed any PA, and .284 times lower if the mother had always been sedentary, in contrast to parents who had practiced and continued to practice PA.

In the qualitative phase, we recorded a total of 215 opinions referring to the influence of social agents involved in adolescents' PA. Of them, 20% point to coaches as the influential agents, 22% to the parents, another 22% to the teachers, and 26% to friends.

Examining in more detail the arguments referring to parents' influence on their children's PA—which we recorded in each one of the group discussions—, we observed that parents are very much aware of their authority to intervene in the consolidation of their children's PA habits, as revealed in 93% of their discourses. For example, the following testimony defends it this way:

I think that maintaining kids' sports depends very much on the parents' availability. If the father has time to get there, to dedicate some time to the child, or to take the child from one place to another, the situation is more favourable.

Parents' collective

However, among the adolescents, we detected a critical attitude towards their parents; they perceive that parents negatively affect their adherence to PA by granting priority to the academic sphere and using the child's leisure PA space as a means to punish them. This is revealed in 36% of the statements. For example:

Many children are influenced by the fact that, for their parents, studies come first, because when you get poor grades, the first thing parents do is to forbid sports.

Students' collective

In 45% of their textual units, the teachers from areas other than PE also commented on this topic, granting relevant protagonism to parents as educational models who, to a great extent, influence their children's engaging in or dropping out of PA. The following argument is an example of this.

Children of parents who read tend to read; children whose parents are active are more likely to live an active lifestyle, and, in contrast, children who see that their parents are lazy are hardly likely to maintain an active lifestyle. Ultimately, we mould our children.

Collective of teachers from other areas

Lastly, in 62% of these discourses, the PE teachers admonish the parents for the scarce importance they grant to the PA sphere, especially as the children grow older, which is when academic issues are perceived as a priority. The following statement reflects this:

There comes a time when the parents say: «Hey, seeing as the only thing you do is waste time with this sport, devote your efforts to studying and don't do any more physical activity».

Collective of PE teachers

Discussion

The purpose of this paper was to determine the possible impact of the importance granted by parents to leisure PA, parental PA, and the parents' educational level on the enhancement or weakening of adherence to PA in their physically active children and to explain the possible interference of such parental factors in adolescents' adherence to PA and to demonstrate a different influence than for the physical inactivity of their children.

In the present investigation, we confirmed the high proportion of adolescents who adhere to PA; that is, a high percentage of youngsters state that they have currently consolidated this habit, in addition to presenting a history of a physically active life. We also verified that parents are very influential educational agents for their children's PA, which is consistent with other studies (Edo, 2004; Gorely, Atkin, Biddle & Marshall, 2009; Madsen, McCulloch & Crawford, 2009; Pakkala et al., 2007; Sanz, Ponce-de-León & Valdemoros, 2012; Seabra, Mendoça, Thomis, Malina & Maia, 2011; Van Der Horst, Paw, Twisk & Van Mechelen, 2007).

In contrast to other studies (Gorely, Atkin, Biddle & Marshall, 2009; Van der Horst, Paw, Twisk, Van Mechelen, 2007; Rangul et al, 2011; Toftegaard-Stockel, Nielsen, Ibsen & Andersen, 2011; Wight, Price, Bianchi & Hunt, 2009), the present results confirm that the parents' educational level does not influence adolescents' PA.

On the one hand, we confirmed that, if adolescents think their parents grant «much» or «very much» importance to PA, this effectively impacts the way these youngsters consolidate their own PA. These results are in keeping with the findings of other investigations (Ommundsen et al., 2006). However, Sanz et al., (2012) showed that to think that their parents grant «very much» importance to PA does not affect the way of being inactive, but to think that their parents give «some» or «much» importance to the PA influences.

We underline an essential contribution of the results obtained in this investigation: the likelihood for adolescents to consolidate their PA is 6 times higher when they know that their parents value motor activities highly, in contrast to adolescents who are unaware of the importance their parents grant to an active lifestyle. However, the fact that adolescents think that their parents grant «little» or «no» importance to such practice does not affect the children's adherence to PA.

These data contradict the opinions of teachers and youngsters when asked what they believe affects adolescents' adherence to PA. They believe that the scarce value granted by parents to PA establishes a barrier to adolescents' adherence to PA, and they repeatedly criticize the fact that parents prioritize the academic area to the detriment of the motor sphere. This finding is consistent with those of Daskapan et al. (2006), who reported that parents' prioritizing academic success to the

detriment of PA is an external impediment for adolescents' PA practice.

We also note as a contribution of this study the confirmation of parents' awareness of this situation, so they are considered to be realistic about their influence on the consolidation of their children's motor activity.

However, adolescents' likelihood of increasing their adherence to PA decreases if their parents adopt a sedentary lifestyle, in contrast to adolescents whose parents exercise and remain physically active. These results agree with those of some authors who have analyzed the same topic (Pahkala et al., 2007; Raudsepp & Viira, 2000; Seabra et al., 2011; Toftegaard-Stockel et al., 2011). However, in contrasting these findings with those of Sanz et al., (2012), the physical inactivity of parents affects less the probability of consolidating physical-sport practice than of being physically inactive.

Whereas Rhodes and Dean (2009) conclude that gender does not correlate with sedentary behaviour, this study confirmed that being female reduces the probability of consolidating adolescents' PA. Contrasting the results of this study with those of Sanz, et al.,(2012), it is detected that the gender underlines more differences in the consolidation of physical practice than in being sedentary. In view of the limitations of the study, as well as the importance of issues such as gender as a determinant of these experiences, we note the need to study this aspect in more depth in future research.

Lastly, we underline that, although the results obtained in other investigations (Gordon-Larsen et al., 2000; Gorely et al., 2009; Van Der Horst et al., 2007) conclude that parents' academic level has an impact on their children's PA, in our investigation, this was not observed to be a determinant of children's adherence to an active lifestyle, in keeping with the results obtained by Mota and Silva (1999).

In view of these data, we underline two aspects. Firstly, in order to increase adolescents' adherence to PA, it is essential for parents not only to grant considerable importance to such practice but also for them to let their children know about their appraisal. Secondly, in contrast to the opinions of teachers and youngsters, the fact that parents grant more importance to other issues, such as studies, than to motor activity does not reduce the likelihood of their children's consolidating their PA. These results should be viewed with caution, as this study is based on the perceptions of adolescents, their parents, and teachers.

These results reveal the need for future research to continue to study family factors in more depth with the aim of constructing youngsters' physical-sport leisure. The results of recent research confirm that good parent-child communication (Sharp, Caldwell, Graham, & Ridenour, 2006; Smith, Freeman, & Zabriskie, 2009) and adequate family cohesion and flexibility (Hornberger, Zabriskie & Freeman, 2010; Smith et al., 2009) both favour positive juvenile and family leisure. There is a need for further research on family functioning and adolescent's PA.

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