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How can parents obtain knowledge about their adolescent children?

¿Cómo las madres y los padres consiguen conocer detalles acerca de las vidas de sus hijos e hijas adolescentes?

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Abstract

The aim of this study is to analyse the influence of family dimensions on parental knowledge of their adolescent children based on the country, gender and age of the adolescents. This study adopts two different perspectives, national and international, with data taken from the results of the 2006 edition of the Health Behaviour in School-aged Children (HBSC) study in Spain and other member countries of the international network, namely, Austria, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany and the United Kingdom. The results indicate that both fathers and mothers obtain knowledge about their adolescent children through the children's disclosures, parental care, parental solicitation and family activities. The discussion focuses on how these family dimensions promote parental knowledge.

Keywords: adolescence, parental knowledge, care, promotion of autonomy, disclosure, solicitation, family activities

¿Cómo las madres y los padres consiguen conocer detalles acerca de las vidas de sus hijos e hijas adolescentes?

Resumen

El objetivo de este estudio es analizar la influencia de diferentes dimensiones familiares sobre el conocimiento que padres y madres tienen acerca de sus hijos e hijas adolescentes, teniendo en cuenta el país, el sexo y la edad de los adolescentes. Esta investigación se realiza desde dos perspectivas, nacional e internacional, con datos tomados de la edición 2006 del estudio Health Behaviour in School-aged Children (HBSC) en España y otros países de la red internacional, concretamente, Alemania, Austria, Bélgica, Bulgaria, Canadá, Croacia, Dinamarca, Estonia, Finlandia, Francia, Reino Unido y República Checa. Los resultados indican que tanto los padres como las madres consiguen información sobre sus hijos e hijas a través de la revelación adolescente, el afecto parental, el interés parental y las actividades familiares. En la discusión se aborda cómo estas dimensiones familiares favorecen la consecución del conocimiento parental.

Palabras clave: adolescencia, conocimiento parental, afecto, promoción de la autonomía, revelación, interés, actividades familiares

Introduction

The field of parental knowledge is an extremely important area of research given the large number of published studies on this topic (Stattin, Kerr, & Tilton-Weaver, 2010). The majority of these studies has identified the parental knowledge as an important component of effective parenting, being related to better adjustment in adolescents (Jacobson & Crockett, 2000; Tilton-Weaver *et al.*, 2010), for example lower problem behaviours, like substance use (Jiménez-Iglesias, Moreno, Granado-Alcón, & López, 2012; Rai *et al.*, 2003; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006; Tebes *et al.*, 2011), and better psychological well-being (Fröjd, Kaltiala-Heino, & Rimpelä, 2007; Jiménez-Iglesias, Moreno, Granado-Alcón *et al.*, 2012; Reitz, Deković, & Meijer, 2006).

The studies done by Kerr and Stattin (2000; Stattin & Kerr, 2000) involved a major advance in understanding the meaning of parental knowledge and its relationship with adolescent adjustment. Parental knowledge includes general knowledge that parents have about their children: where they go, when they are out, what they do and who their friends are (Kerr & Stattin, 2000; Stattin & Kerr, 2000). Parental knowledge allows parents to be informed about the lives of their adolescents, in a period in which opportunities of taking part in problematic activities increase, while direct parental supervision decreases (Jacobson & Crockett, 2000). But probably parental knowledge is also important for a positive adolescents' development because of the ways that parents have to obtain knowledge and the actions that parents do after acquiring it (Stattin *et al.*, 2010).

Parental knowledge is a mental state rather than a parenting behaviour (Kakihara & Tilton-Weaver, 2009); it does not necessarily reflect parental behaviours because

adolescents' management of their own information is also important (Laird, Marrero, & Sherwood, 2010).

Three factors are commonly associated with parents' knowledge about their adolescent children: the parental skills needed to ask children or another source for information (Bumpus & Rodgers, 2009; Crouter & Head, 2002), such as information that parents can obtain from the parents of their children's friends (Bourdeau, Miller, Duke, & Ames, 2011); the tendency of adolescents to provide information about their activities of their own free will (Bourdeau *et al.*, 2011; Bumpus & Rodgers, 2009; Crouter & Head, 2002), and the quality of the parent-child relationship (Bumpus & Rodgers, 2009; Crouter & Head, 2002).

Therefore, parental knowledge, is generated by loving parents who attempt to be informed (Darling, Cumsille, Peña-Alampay, & Coatsworth, 2009) while encouraging a positive family context in which adolescents are likely to communicate openly and parents are likely to be knowledgeable about their children's activities, locations and friends (Fletcher, Steinberg, & Williams-Wheeler, 2004; Salafia, Gondoli, & Grundy, 2009; Soenens *et al.*, 2006). That is, communication between parents and adolescents is an effective way to obtain parental knowledge of adolescent children (Kerr & Stattin, 2000; Stattin & Kerr, 2000), and it implies adolescent disclosure and parental solicitation (Keijsers, Branje, VanderValk, & Meeus, 2010). Furthermore, parents' involvement in the activities of their sons and daughters (Bumpus, Crouter, & McHale, 2006), time spent with the family and adolescents' acceptance of the appropriateness of parental monitoring involve higher levels of parental knowledge (Laird, Pettit, Dodge, & Bates, 2003; Smetana, Metzger, Gettman, & Campione-Barr, 2006).

In general, parents who are integrated into their adolescents' worlds are aware of their children's daily experiences (Waizenhofer, Buchanan, & Jackson-Newsom, 2004).

However, adolescents also play a role in parental knowledge acquisition. Adolescents' trust in sharing information with their parents is an important way for parents to obtain knowledge about their children's lives (Eaton, Krueger, Johnson, McGue, & Iacono, 2009; Keijsers *et al.*, 2010; Kerr & Stattin, 2000; Kerr, Stattin, & Burk, 2010; Stattin & Kerr, 2000; Willoughby & Hamza, 2011). Adolescent disclosure is more likely to occur among adolescents whose parents rarely react negatively to their comments and who do not feel controlled by their parents (Hayes, Hudson, & Matthews, 2003, 2004; Tilton-Weaver *et al.*, 2010).

These previous studies show that parental knowledge is an important area of research and a well-studied topic. In the field of parental knowledge, this current study proposes to include different aspects, which could be interesting. Different family dimensions, that aforementioned studies have indicated important for parental knowledge, are here analysed together in the same research. Each family dimension (except family activities) has maternal and paternal variable, and these variables are analysed separately, because it is important to know how mother and father get their own knowledge (Crouter & Head, 2002). Moreover, this study examines if variables like country, gender and age of adolescents (variables related to the sampling) have a moderating effect on the relationship between family dimensions and parental knowledge (and not only effect on separate dimensions). Until now, there are not studies about this topic in Spain.

Regarding differences between mothers and fathers, research show that adolescents perceive their mothers more affectionate and promoter their autonomy than fathers (Klimidis, Minas, & Ata, 1992; Oliva, Parra, Sánchez-Queija, & López, 2007), and also more interested in their adolescents' lives and more knowledgeable about them (Crouter, Bumpus, Davis, & McHale, 2005; Waizenhofer *et al.*, 2004). Besides, mothers

share more time with their adolescents (Dubas & Gerris, 2002), and adolescents disclose them more information about their lives (Oliva, Parra *et al.*, 2007).

Concerning adolescents' gender, boys and girls perceive high levels of parental care and parental promotion of autonomy (Klimidis *et al.*, 1992). Differences between boys and girls in family activities depend on the type of activity (Zaborskis, Zemaitiene, Borup, Kuntsche, & Moreno, 2007). Girls usually disclose more information than boys, and parents require more information from their daughters (Kerr & Stattin, 2000; Parra & Oliva, 2006; Stattin & Kerr, 2000; Waizenhofer *et al.*, 2004) and they know more about their daughters than their sons (Crouter *et al.*, 2005; Rai *et al.*, 2003; Waizenhofer *et al.*, 2004). However, research have also found that fathers usually know considerably more about their sons, whilst mothers know more about their daughters (Maccoby, 2003; Moreno, Ramos, Rivera, Jiménez-Iglesias, & García-Moya, 2012), and fathers spend more time with their sons, and mothers spend more time with their daughters (Dubas & Gerris, 2002).

In relation to the adolescents' age, the following changes take place in the main family dimensions during adolescence: the ways to show affection change (Collins & Laursen, 2004), promotion of autonomy increases (Steinberg & Silk, 2002) and time shared with family (Zaborskis *et al.*, 2007), as well as parental solicitation, adolescent disclosure and parental knowledge usually decrease (Laird *et al.*, 2003; Pettit, Keiley, Laird, Bates, & Dodge, 2007).

Finally, different research show that, in Spain, family cohesion is a deeply rooted value (Morgan, Rivera, Moreno, & Haglund, 2012; Oliva & Parra, 2001), family activities are frequent (Zaborskis *et al.*, 2007), and communication with parents is easier than in other countries (Currie *et al.*, 2012)

This paper uses data from the results of the 2006 edition of the WHO's international survey on Health Behaviour in School-aged Children (HBSC) in Spain and other member countries of the international network. The HBSC study takes place in more than 40 western countries, but in this paper were studied 13 countries, which included the variables analysed. Data collection with school-aged adolescents is carried out every four years, with the objective of obtaining a global vision of the adolescents' lifestyles, their main developmental contexts, and the implications of all of them for the adolescents' health and psychological adjustment (Currie, Nic Gabhainn, Godeau, & the International HBSC Network Coordinating Committee, 2009; Currie *et al.*, 2012). For more information, visit http://www.hbsc.org/

The aim of this paper, according to the adolescents' perceptions, is to analyse the importance of different family dimensions for obtaining parental knowledge, taking into account the maternal and paternal dimensions in separate analysis. Besides, it is analysed if the relationship between family dimensions and parental knowledge is moderated by country, gender and age of adolescents.

This study is done from two perspectives: international and national. From an international perspective, the objective of this study is to determine, separately for fathers and mothers and based on the country, gender and age of the adolescents, the influence of parental care and the parental promotion of autonomy on parental knowledge about adolescent children. From a Spanish national perspective, the international objective is examined in more detail with the addition of variables present only in the Spanish HBSC questionnaire. The general objective is to analyse (again, separately for fathers and mothers and based on the adolescents' gender and age) how different variables in the family context (care, promotion of autonomy, disclosure, solicitation and family activities) are associated with parental knowledge.

Method

Participants

Sampling was conducted in accordance with the structure of national education systems within countries and was sometimes stratified by region or school type to get a representative sample of school-aged children of each country (Currie *et al.*, 2012; Roberts *et al.*, 2009). In Spain was used a random multistage sampling procedure stratified by conglomerates (taking into account: age, region of Spain, residence -rural and urban-, and type of educational centre -public or private-) (Moreno *et al.*, 2008).

In this study, the international sample consisted of 59320 adolescents (49.37% boys and 50.63% girls) aged 13 and 15 from Austria, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Spain and the United Kingdom (England, Scotland and Wales). The national sample was composed of 14825 Spanish adolescents (46.41% boys and 53.59% girls) aged 13-14, 15-16 and 17-18 (in Spain, the analysis of the even ages and ages 17-18 were added as national option, so these ages are not included in the international sample).

The international sample was used for the results from an international perspective, and the national sample was used for the results from a national perspective.

Measures

The HBSC-2006 questionnaire was used for the national and international study. The HBSC questionnaire is a broad survey that reveals the adolescent health habits from a multidisciplinary perspective. The variables and items are chosen based on the overall objectives of the study and on the scientific rationale underlying their use. The international questionnaire consists of mandatory items employed in all participating countries and optional items, which are included by countries based on national interest,

need and expertise. Many countries also include specific national questions of social importance. Moreover, the international standard questionnaire is developed in English and is translated into national languages, and then translated back into English to make sure the parity between languages (Currie *et al.*, 2012; Roberts *et al.*, 2009). For more information, see Moreno *et al.* (2008).

The Research Ethical Committee of the University of Seville approved the HBSC questionnaire. For this study, the selected variables were the followings.

Demographic variables were country, gender and age of the adolescents, because they are the most used in the HBSC study to examine whether there are or not differences in the data. Given that this is an international study, the variable country is central to the construction of the international database. Regarding gender and age, these variables are directly asked at the beginning of the questionnaire.

As for family dimensions, the following variables were employed:

Perceived parental care and perceived parental promotion of autonomy. These variables were used as scales based on the dimensions of care and the promotion of autonomy, respectively, from the Parental Bonding Inventory-Brief Current form, PBI-BC by Klimidis *et al.* (1992) (the HBSC-PBI). The following items were used to obtain the perceived maternal and paternal care scale with values from 0 (*low care*) to 2 (*high care*): “My mother/father… helps me as much as I need/ is loving/ understands my problems and worries/ makes me feel better when I am upset”. The following items were used to obtain perceived maternal and paternal promotion of autonomy scale with values from 0 (*low promotion*) to 2 (*high promotion*): “My mother/father… lets me do the things I like doing/ likes for me to make my own decisions/ tries to control everything I do/ treats me like a baby”.

Perceived parental knowledge. This variable was created as a scale of a series of items taken from the instrument designed by Brown, Mounts, Lamborn, and Steinberg (1993): "How much does your mother/father really know about… who your friends are?/ how you spend your money?/ where you are after school?/ where you go at night?/ what you do with your free time?". The values of this scale were from 0 (*low knowledge*) to 2 (*high knowledge*).

The aforementioned family dimensions belong to both questionnaires, international and national, and they are optional items included by countries examined in this study. The following family dimensions only appear in the Spanish HBSC questionnaire, and then were only used for the national results.

Perceived sources of parental knowledge. This variable included adolescent disclosure ("In general, my mother/father knows about these things because… I tell her/him spontaneously, even if she/he doesn't ask") and parental solicitation ("In general, my mother/father knows about these things because… she/he asks me directly and I tell her/him"). The values of these items ranged from 0 (*never*) to 3 (*always*).

Family activities. This variable concerns the frequency with which shared family activities are performed and is based on the items used by Sweeting, West, and Richards (1998) as well as items created in the HBSC study to indicate adolescents' enjoyment of participating in such activities. These items included watching TV or a video together/ playing indoor games together/ eating a meal together/ going for a walk together/ going places together/ visiting friends or relatives together/ playing sports together/ sitting and talking about things together. The values of the scale ranged from 0 (*low frequency and enjoyment of family activities*) to 28 (*high frequency and enjoyment of family activities*).

Procedures

For the international and national data collection procedure, the HBSC study indicates three basic conditions that must be met: the schoolchildren must answer the questionnaires, the anonymity of their answers must be scrupulously respected and maintained, and trained interviewers within the school context must administer the questionnaires, usually during one hour (Currie *et al.*, 2012; Roberts *et al.*, 2009).

To achieve the national and international objectives of this study, a multiple linear regression analysis was performed using the IBM SPSS Statistics 18 program. The method used to select the independent variables was an 'introduction' that was performed at different stages by including the variables in different steps. The socio-demographic variables (country, gender, and age) were included first, the family dimensions were introduced second, and in the third step, the interactions of two variables, one socio-demographic variable and one variable of family dimensions, were included. From an international perspective, this step implied the interaction between countries and family dimensions, whereas a fourth step implied the interactions between countries, family dimensions and gender or age.

The third step (and fourth step only for the international study) analysed whether the socio-demographic variables in this study (country, gender and age) had a moderating effect on the relationship between the family dimensions and parental knowledge. Following this analysis, another multiple linear regression analysis was performed to adjust the variables involved in parental knowledge.

The statistical *F*-test was used to analyse the significance of any increase obtained by introducing variables into the equation. The coefficient of determination R^2 was analysed to obtain the quality of the regression equation (Hair, Anderson, Tatham, & Black, 2008). According to Cohen's recommendations (1988), the clinical relevance

(R^2) was classified as negligible (0 to 0.019), small (0.02 to 0.129), medium (0.13 to 0.259) and large (0.26 and up) (Cohen, 1988). The standardised beta coefficients (β) and the semi-partial correlation were analysed for each independent variable (Hair *et al.*, 2008).

Results

Results from an international perspective

The first multiple linear regression analysis on maternal knowledge indicated that the most relevant variable was maternal care. To verify this result, another multiple linear regression analysis was conducted with maternal care, which was significant, F (1, 25282) = 5909.86, $p < .001$, with a medium clinical relevance ($R^2 = .19$). In a second step, the remaining variables in the model were found to be significant, F (87, 25195) = 6.91, $p < .001$, but with a negligible clinical relevance ($\Delta R^2 = .019$) (see table I). Therefore, the most significant variable for the acquisition of maternal knowledge was maternal care (β = .44, t = 76.88, $p < .001$, $rs^2 = .19$).

Insert Table I

The first multiple linear regression analysis on paternal knowledge indicated that paternal care was the most relevant variable. To verify this finding, another multiple linear regression analysis was performed using only the variable of paternal care. The model was significant, F (1, 23737) = 10884.75, $p < .001$, with large clinical relevance ($R^2 = .31$). In a second step, the remaining variables were added and the model was significant, F (87, 23650) = 5.57, $p < .001$, but with negligible clinical relevance ($\Delta R^2 = .014$). The most significant variable for obtaining paternal knowledge was paternal care (β = .56, t = 104.33, $p < .001$, $rs^2 = .31$), as shown in table II.

Insert Table II

Results from a national perspective

The first multiple linear regression analysis on maternal knowledge indicated that the most relevant variables were maternal care, maternal solicitation, adolescent disclosure to mothers and family activities. To verify the relevance of these variables, another multiple linear regression analysis was performed (see table III). The model of maternal care, maternal solicitation, adolescent disclosure to mothers and family activities was significant, F (4, 12885) = 1345.01, $p < .001$, with large clinical relevance ($R^2 = .30$). In a second step, the remaining variables produced a significant model, F (19, 12866) = 10.23, $p < .001$, but with negligible clinical relevance ($\Delta R^2 = .01$).

Insert Table III

For perceived maternal knowledge, adolescent disclosure to mothers was the most important variable, with greater disclosure leading to the acquisition of more knowledge (β = .31, t = 38.76, $p < .001$, $rs^2 = .08$). Maternal care was the second most important variable: greater maternal care implied more knowledge (β = .21, t = 25.21, $p < .001$, $rs^2 = .04$). Maternal solicitation was also relevant for the acquisition of maternal knowledge: the greater the maternal solicitation, the more knowledge was obtained (β = .16, t = 21.23, $p < .001$, $rs^2 = .03$). For family activities, the more often these activities were performed, the more parental knowledge that was acquired (β = .09, t = 10.82, $p < .001$, $rs^2 = .01$).

The first multiple linear regression analysis on paternal knowledge indicated that paternal care, paternal solicitation, adolescent disclosure to fathers and family activities were the most relevant variables. To verify this, another multiple linear regression analysis was performed, as shown in table IV. The model with relevant variables was significant, F (4, 12310) = 2125.46, $p < .001$, with a large clinical relevance ($R^2 = .41$).

The model with the remaining variables was significant, F (19, 12291) = 7.52, $p < .001$, but with negligible clinical relevance ($\Delta R^2 = .007$).

Insert Table IV

For perceived paternal knowledge, paternal care was the most important variable: the more care displayed, the more knowledge was acquired (β = .33, t = 39.06, $p < .001$, $rs^2 = .07$). The same trend observed for the second most important variable, adolescent disclosure to fathers. The more adolescents disclosed to their fathers, the more knowledge was obtained (β = .25, t = 31.27, $p < .001$, $rs^2 = .05$). This finding applied to paternal solicitation as well: greater solicitation leading to the acquisition of more knowledge (β = .19, t = 25.32, $p < .001$, $rs^2 = .03$). The family activities variable followed suit: the more often family activities were performed, the more knowledge was obtained (β = .08, t = 10.89, $p < .001$, $rs^2 = .01$).

The moderation hypothesis of the socio-demographic variables (country, gender, and age) was not supported (neither for international results nor for national results) when the variables that influenced parental knowledge were studied. The interactions were insignificant and with negligible effect size.

Discussion

The main objective of this study was to identify the most important family dimensions in the parental acquisition of knowledge about adolescent children from both international and national perspectives. The international perspective is an approach to the study of the acquisition of parental knowledge, whereas the national perspective allows a more in-depth study about this important topic with the addition of new variables that help to obtain detailed information about how can parents obtain knowledge about their adolescent children.

All of the family dimensions studied, with the exception of parental promotion of autonomy, were relevant for the acquisition of both paternal and maternal knowledge, so father and mother get knowledge in similar ways.

In the international data, parental care was the only relevant dimension of the two family dimensions studied. In the national data, paternal care was the most important dimension for paternal knowledge. Parental knowledge is increased by affectionate parents who attempt to maintain current knowledge (Darling *et al.*, 2009), and who generate quality parent-child relationships (Bumpus & Rodgers, 2009; Crouter & Head, 2002; Rai *et al.*, 2003).

In the national data (mainly for maternal knowledge), adolescents' disclosure to their parents was very important for obtaining parental knowledge. As other studies have found, adolescent disclosure is one of the dimensions associated with parental acquisition of knowledge about their adolescent children (Bourdeau *et al.*, 2011; Bumpus & Rodgers, 2009; Crouter & Head, 2002). Furthermore, adolescent disclosure is the best predictor of parental knowledge (Eaton *et al.*, 2009; Keijsers *et al.*, 2010; Kerr & Stattin, 2000; Kerr *et al.*, 2010; Stattin & Kerr, 2000; Willoughby & Hamza, 2011). In fact, when adolescents keep secrets, lie or hide information to their parents, parental knowledge decreases (Darling, Cumsille, Caldwell, & Dowdy, 2006; Engels, Finkenauer, & Van Kooten, 2006; Frijns, Finkenauer, Vermulst, & Engels, 2005). Therefore, boys and girls must trust their parents enough to disclose information to them so that parents can maintain current knowledge about their children's lives (Eaton *et al.*, 2009; Keijsers *et al.*, 2010; Kerr & Stattin, 2000; Kerr *et al.*, 2010; Stattin & Kerr, 2000; Willoughby & Hamza, 2011). Parents could not know much of this information unless their adolescent children tell them because, in adolescence, the direct parental supervision decreases and the time spent in other contexts increases.

The next most important variable was parental solicitation. Parental skill in requesting information from children is another family dimension that has been frequently related to obtaining and maintaining parental knowledge (Bumpus & Rodgers, 2009; Crouter & Head, 2002; Waizenhofer *et al.*, 2004). Mothers and fathers can use different tools to find out about their children (Crouter & Head, 2002), but it is important for adolescents to accept the appropriateness of this parental monitoring (Laird *et al.*, 2003; Smetana *et al.*, 2006).

Adolescent disclosure and parental solicitation reflect communication between parents and adolescents (Keijsers *et al.*, 2010), which is an effective way for parents to be informed about their adolescent children (Kerr & Stattin, 2000; Stattin & Kerr, 2000).

According to national data, family activities shared among mothers, fathers and children are important for the parental acquisition of knowledge. Parental involvement with children in activities (Bumpus *et al.*, 2006) and the time spent together as a family (Crouter, Head, McHale, & Tucker, 2004; Laird *et al.*, 2003; Smetana *et al.*, 2006) allow parents to find out how their children behave, what their opinions, feelings, likes and interests are, who their friends are and their progress at school.

For another hand, the socio-demographic variables in this study (country, gender and age) had not a moderating effect on the relationship between the family dimensions and parental knowledge, and individually were not involved in the acquisition of parental knowledge. This may be because the family dimensions are more important for parents obtain knowledge, regardless of whether these dimensions are expressed in the presence of boys or girls, or adolescents of a group of age or another, or adolescents from a country or another. Put another way, this study analyses basic dimensions of the

family relationships, which are probably less influenced by cultural and socio-economic differences.

Consequently, both adolescents and their parents are involved in the acquisition of parental knowledge, as other studies have revealed (Kerr & Stattin, 2000; Laird *et al.*, 2010; Stattin & Kerr, 2000). However, parents can contribute to their children's role in this process by encouraging adolescent disclosure and listening to children with an open mind when they speak. Adolescent disclosure is more likely to occur in adolescents whose parents rarely react negatively to their comments (they are understanding and affectionate, and they do not react with anger, disapproval or coldness) and who feel more connected and less controlled by their parents (Hayes *et al.*, 2003, 2004; Tilton-Weaver *et al.*, 2010). Furthermore, a positive family context promotes adolescents' open communication and increases parents' knowledge of their children's activities, locations and friends (Fletcher *et al.*, 2004; Salafia *et al.*, 2009; Soenens *et al.*, 2006). The importance of these family processes is also supported from a qualitative perspective used in other study with adolescents (Jiménez-Iglesias, Moreno, García-Moya, & López, 2012).

Some limitations must be considered. The fact that all of the information in this study comes from one source, namely, the male and female adolescents, may exaggerate the existing relationships between the different variables and include only the adolescents' perceptions of parental behaviour. However, adolescents are the most used source of parental knowledge (Kerr, Stattin, & Özdemir, 2012), as well as they are the most reliable, objective source of information and are least influenced by social desirability (Parra & Oliva, 2006). Furthermore, their ideas about adolescence are more positive and consistent with the results of the current research (Ridao & Moreno, 2008) and their perception of parental message determines the efficacy of parental

socialization (Grusec & Goodnow, 1994). Other limitations of this study are the cross-sectional design, which has more limited validity than a longitudinal design, and that the HBSC questionnaire is a broad survey which allows exploring many variables, but not studying them in depth. Besides, this study analyse different countries, but not cultural variations or socio-economic inequalities inside each of them.

However, the greatest strength of this study is that the HBSC study provides a well-rounded view of family and adolescents, and the sampling favours the generalisation of the international and national results. Furthermore, although the aim of this study is a well-studied topic, in our country is the first study that analyse how can parents obtain knowledge about the life of their adolescent children. Nevertheless, the non-existence of influence of the country show that this study analyses basic dimensions of the family relationships, and its results can be generalized to any western country.

Future studies could improve this research. It would be interesting to include not only the adolescents' perceptions but also parents' perceptions. A longitudinal design about this topic would allow a better understanding of the family processes. In addition, it would be necessary to consider the improvement of measures (like solicitation and disclosure) and the addition of new related measures (like parent-child trust, or parents reactions to adolescent disclosure).

Finally, all family dimensions that are involved in the acquisition of parental knowledge must be promoted in parent interventions beginning in childhood (Moilanen, Shaw, & Criss, 2009; Rodrigo, Máiquez, & Martín, 2010), taking into account that parents must adapt their methods of acquiring this knowledge to their children's stages of development (Dishion & McMahon, 1998; Palacios, 2012). These interventions are important to achieve affectionate parents, with interest in the lives of their adolescents,

parents who listen openly when adolescents talk and share time with their families (Oliva, Hidalgo *et al.*, 2007). Besides, this will result in healthier physical, psychological and social development of their adolescent children (Jacobson & Crockett, 2000; Tilton-Weaver *et al.*, 2010) because the most important thing about the knowledge is that the parents are capable of doing whatever is necessary at the appropriate moment, to make sure their adolescent develop in the most positive way possible.

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TABLE I

Multiple linear regression analysis on maternal knowledge from an international perspective

Predictor	*B*	*Error*	β	rs^2	*p*
Model adjusted					
Care	0.46	0.01	.44	.19	.000
Contrast Model					
Care	0.35	0.02	.34	.01	.000
Austria	-0.17	0.01	-.12	.01	.000
Belgium	-0.18	0.01	-.10	.01	.000
Bulgaria	-0.08	0.01	-.06	.002	.000
Canada	-0.08	0.01	-.06	.001	.000
Croatia	-0.07	0.01	-.05	.001	.000
Czech Republic	-0.10	0.01	-.06	.002	.000
Denmark	-0.12	0.01	-.08	.003	.000
Estonia	-0.11	0.01	-.06	.002	.000
Finland	-0.14	0.01	-.08	.003	.000
France	-0.16	0.01	-.09	.004	.000
Germany	-0.04	0.01	-.03	.000	.002
United Kingdom	-0.10	0.01	-.06	.002	.000
Boy	-0.01	0.01	-.02	.00	.003
13 years	0.02	0.01	.03	.001	.000
Promotion of autonomy	0.09	0.02	.08	.00	.000
Care x Austria	0.12	0.04	.04	.00	.002
Care x Belgium	0.08	0.05	.02	.00	.092
Care x Bulgaria	0.03	0.04	.01	.00	.491
Care x Canada	0.11	0.04	.04	.00	.002
Care x Croatia	0.21	0.05	.05	.001	.000
Care x Czech Republic	0.10	0.05	.03	.00	.028
Care x Denmark	0.20	0.05	.05	.001	.000
Care x Estonia	0.05	0.05	.01	.00	.381
Care x Finland	0.22	0.05	.05	.00	.000
Care x France	0.12	0.06	.03	.00	.030
Care x Germany	0.03	0.05	.01	.00	.592
Care x United Kingdom	0.04	0.05	.01	.00	.418
Promotion of autonomy x Austria	0.08	0.04	.03	.00	.037
Promotion of autonomy x Belgium	0.07	0.05	.02	.00	.179
Promotion of autonomy x Bulgaria	-0.04	0.04	-.01	.00	.343
Promotion of autonomy x Canada	-0.13	0.04	-.04	.00	.001
Promotion of autonomy x Croatia	-0.09	0.04	-.03	.00	.030
Promotion of autonomy x Czech Republic	-0.1	0.05	-.03	.00	.027
Promotion of autonomy x Denmark	-0.19	0.05	-.05	.00	.000
Promotion of autonomy x Estonia	-0.04	0.05	-.01	.00	.405
Promotion of autonomy x Finland	0.02	0.05	.004	.00	.752
Promotion of autonomy x France	-0.11	0.06	-.02	.00	.058
Promotion of autonomy x Germany	0.01	0.05	.002	.00	.883
Promotion of autonomy x United Kingdom	-0.09	0.05	-.02	.00	.056

Predictor	*B*	*Error*	β	rs^2	*p*
Care x Austria x boy	0.04	0.04	.01	.00	.279
Care x Belgium x boy	-0.09	0.05	-.02	.00	.072
Care x Bulgaria x boy	-0.004	0.04	-.001	.00	.926
Care x Canada x boy	0.01	0.04	.002	.00	.765
Care x Croatia x boy	0.01	0.04	.002	.00	.815
Care x Czech Republic x boy	-0.08	0.05	-.02	.00	.065
Care x Denmark x boy	0.01	0.04	.002	.00	.766
Care x Estonia x boy	0.08	0.05	.01	.00	.126
Care x Finland x boy	-0.08	0.06	-.01	.00	.147
Care x France x boy	0.03	0.06	.004	.00	.572
Care x Germany x boy	-0.01	0.05	-.002	.00	.810
Care x United Kingdom x boy	0.11	0.05	.02	.00	.017
Promotion of autonomy x Austria x boy	-0.16	0.04	-.04	.001	.000
Promotion of autonomy x Belgium x boy	-0.02	0.05	-.003	.00	.692
Promotion of autonomy x Bulgaria x boy	0.02	0.04	.004	.00	.617
Promotion of autonomy x Canada x boy	0.06	0.04	.01	.00	.086
Promotion of autonomy x Croatia x boy	-0.03	0.04	-.01	.00	.429
Promotion of autonomy x Czech Republic x boy	0.04	0.05	.01	.00	.429
Promotion of autonomy x Denmark x boy	0.02	0.05	.003	.00	.717
Promotion of autonomy x Estonia x boy	-0.04	0.05	-.01	.00	.498
Promotion of autonomy x Finland x boy	-0.04	0.05	-.01	.00	.423
Promotion of autonomy x France x boy	-0.01	0.06	-.001	.00	.922
Promotion of autonomy x Germany x boy	-0.09	0.04	-.02	.00	.042
Promotion of autonomy x United Kingdom x boy	-0.01	0.05	-.001	.00	.868
Care x Austria x 13 years	-0.01	0.04	-.001	.00	.892
Care x Belgium x 13 years	0.1	0.05	.02	.00	.056
Care x Bulgaria x 13 years	0.04	0.04	.01	.00	.299
Care x Canada x 13 years	-0.07	0.04	-.02	.00	.047
Care x Croatia x 13 years	-0.09	0.05	-.02	.00	.036
Care x Czech Republic x 13 years	0.05	0.05	.01	.00	.249
Care x Denmark x 13 years	-0.08	0.05	-.02	.00	.078
Care x Estonia x 13 years	-0.02	0.05	-.003	.00	.672
Care x Finland x 13 years	-0.12	0.06	-.02	.00	.031
Care x France x 13 years	-0.03	0.06	-.004	.00	.618
Care x Germany x 13 years	0.01	0.05	.001	.00	.898
Care x United Kingdom x 13 years	0.05	0.05	.01	.00	.275
Promotion of autonomy x Austria x 13 years	0.04	0.04	.01	.00	.223
Promotion of autonomy x Belgium x 13 years	-0.05	0.05	-.01	.00	.391
Promotion of autonomy x Bulgaria x 13 years	-0.01	0.04	-.002	.00	.781
Promotion of autonomy x Canada x 13 years	-0.02	0.04	-.004	.00	.589
Promotion of autonomy x Croatia x 13 years	0.002	0.04	.00	.00	.972
Promotion of autonomy x Czech Republic x	-0.12	0.05	-.02	.00	.010

Predictor	*B*	*Error*	β	rs^2	*p*
13 years					
Promotion of autonomy x Denmark x 13 years	0.09	0.05	.02	.00	.072
Promotion of autonomy x Estonia x 13 years	-0.05	0.05	-.01	.00	.309
Promotion of autonomy x Finland x 13 years	-0.13	0.05	-.02	.00	.018
Promotion of autonomy x France x 13 years	-0.04	0.06	-.01	.00	.464
Promotion of autonomy x Germany x 13 years	0.01	0.04	.001	.00	.917
Promotion of autonomy x United Kingdom x 13 years	0.03	0.05	.01	.00	.585

TABLE II

Multiple linear regression analysis on paternal knowledge from an international perspective

Predictor	*B*	*Error*	β	rs^2	*p*
Model adjusted					
Care	0.62	0.01	.56	.31	.000
Contrast Model					
Care	0.63	0.02	.57	.02	.000
Austria	-0.18	0.02	-.10	.004	.000
Belgium	-0.17	0.02	-.07	.003	.000
Bulgaria	-0.07	0.02	-.04	.001	.000
Canada	-0.10	0.02	-.06	.001	.000
Croatia	-0.03	0.02	-.02	.00	.046
Czech Republic	-0.11	0.02	-.05	.001	.000
Denmark	-0.12	0.02	-.06	.002	.000
Estonia	-0.12	0.02	-.05	.001	.000
Finland	-0.14	0.02	-.06	.002	.000
France	-0.17	0.02	-.07	.003	.000
Germany	-0.07	0.02	-.03	.001	.000
United Kingdom	-0.11	0.02	-.05	.001	.000
Boy	0.01	0.01	.01	.00	.268
13 years	0.03	0.01	.02	.00	.000
Promotion of autonomy	-0.02	0.03	-.02	.00	.403
Care x Austria	0.11	0.04	.04	.00	.003
Care x Belgium	-0.08	0.05	-.02	.00	.114
Care x Bulgaria	-0.09	0.04	-.02	.00	.038
Care x Canada	-0.02	0.04	-.01	.00	.626
Care x Croatia	-0.01	0.04	-.001	.00	.893
Care x Czech Republic	0.04	0.04	.01	.00	.352
Care x Denmark	0.08	0.05	.02	.00	.091
Care x Estonia	-0.04	0.05	-.01	.00	.467
Care x Finland	0.06	0.05	.01	.00	.240
Care x France	-0.04	0.05	-.01	.00	.514
Care x Germany	-0.03	0.05	-.01	.00	.452
Care x United Kingdom	-0.03	0.05	-.01	.00	.533
Promotion of autonomy x Austria	0.02	0.05	.004	.00	.745
Promotion of autonomy x Belgium	-0.02	0.06	-.004	.00	.724
Promotion of autonomy x Bulgaria	0.03	0.05	.01	.00	.566
Promotion of autonomy x Canada	-0.11	0.05	-.03	.00	.019
Promotion of autonomy x Croatia	-0.04	0.05	-.01	.00	.440
Promotion of autonomy x Czech Republic	-0.07	0.06	-.01	.00	.254
Promotion of autonomy x Denmark	-0.11	0.07	-.02	.00	.098
Promotion of autonomy x Estonia	-0.09	0.06	-.02	.00	.144
Promotion of autonomy x Finland	-0.05	0.07	-.01	.00	.430
Promotion of autonomy x France	0.03	0.07	.004	.00	.674
Promotion of autonomy x Germany	0.02	0.05	.004	.00	.725
Promotion of autonomy x United Kingdom	-0.07	0.06	-.01	.00	.214

Predictor	*B*	*Error*	β	rs^2	*p*
Care x Austria x boy	-0.13	0.04	-.03	.00	.000
Care x Belgium x boy	-0.01	0.05	-.001	.00	.897
Care x Bulgaria x boy	0.003	0.04	.001	.00	.934
Care x Canada x boy	0.06	0.04	.01	.00	.074
Care x Croatia x boy	0.01	0.04	.002	.00	.763
Care x Czech Republic x boy	-0.001	0.04	.00	.00	.981
Care x Denmark x boy	0.01	0.04	.001	.00	.885
Care x Estonia x boy	0.05	0.05	.01	.00	.344
Care x Finland x boy	-0.08	0.06	-.01	.00	.152
Care x France x boy	-0.04	0.06	-.01	.00	.517
Care x Germany x boy	-0.05	0.04	-.01	.00	.302
Care x United Kingdom x boy	0.07	0.04	.01	.00	.097
Promotion of autonomy x Austria x boy	0.04	0.05	.01	.00	.422
Promotion of autonomy x Belgium x boy	0.03	0.07	.004	.00	.656
Promotion of autonomy x Bulgaria x boy	0.04	0.05	.01	.00	.388
Promotion of autonomy x Canada x boy	-0.06	0.04	-.01	.00	.147
Promotion of autonomy x Croatia x boy	-0.001	0.05	.00	.00	.992
Promotion of autonomy x Czech Republic x boy	0.02	0.06	.002	.00	.755
Promotion of autonomy x Denmark x boy	0.03	0.06	.004	.00	.598
Promotion of autonomy x Estonia x boy	-0.01	0.07	-.001	.00	.880
Promotion of autonomy x Finland x boy	0.03	0.07	.003	.00	.680
Promotion of autonomy x France x boy	-0.02	0.07	-.003	.00	.732
Promotion of autonomy x Germany x boy	-0.05	0.05	-.01	.00	.349
Promotion of autonomy x United Kingdom x boy	0.05	0.06	.01	.00	.403
Care x Austria x 13 years	-0.01	0.04	-.002	.00	.763
Care x Belgium x 13 years	0.05	0.05	.01	.00	.369
Care x Bulgaria x 13 years	0.07	0.04	.01	.00	.103
Care x Canada x 13 years	-0.05	0.04	-.01	.00	.187
Care x Croatia x 13 years	0.01	0.04	.002	.00	.832
Care x Czech Republic x 13 years	0.002	0.04	.00	.00	.967
Care x Denmark x 13 years	-0.03	0.05	-.01	.00	.569
Care x Estonia x 13 years	0.01	0.05	.002	.00	.795
Care x Finland x 13 years	0.002	0.06	.00	.00	.975
Care x France x 13 years	0.1	0.06	.01	.00	.090
Care x Germany x 13 years	-0.02	0.04	-.003	.00	.736
Care x United Kingdom x 13 years	0.003	0.04	.001	.00	.946
Promotion of autonomy x Austria x 13 years	0.06	0.05	.01	.00	.175
Promotion of autonomy x Belgium x 13 years	0.07	0.07	.01	.00	.287
Promotion of autonomy x Bulgaria x 13 years	-0.02	0.05	-.002	.00	.754
Promotion of autonomy x Canada x 13 years	0.06	0.05	.01	.00	.157
Promotion of autonomy x Croatia x 13 years	0.01	0.05	.002	.00	.830

Predictor	*B*	*Error*	β	rs^2	*p*
Promotion of autonomy x Czech Republic x 13 years	-0.08	0.06	-.01	.00	.204
Promotion of autonomy x Denmark x 13 years	0.04	0.06	.01	.00	.483
Promotion of autonomy x Estonia x 13 years	-0.01	0.07	-.001	.00	.912
Promotion of autonomy x Finland x 13 years	0.05	0.07	.01	.00	.505
Promotion of autonomy x France x 13 years	-0.15	0.07	-.02	.00	.037
Promotion of autonomy x Germany x 13 years	-0.04	0.05	-.01	.00	.433
Promotion of autonomy x United Kingdom x 13 years	-0.02	0.06	-.002	.00	.789

TABLE III

Multiple linear regression analysis on maternal knowledge from a national perspective

Predictor	*B*	*Error*	β	rs^2	*p*
Model adjusted					
Care	0.19	0.01	.21	.04	.000
Solicitation	0.08	0.004	.16	.03	.000
Disclosure	0.12	0.003	.31	.08	.000
Family activities	0.01	0.001	.09	.01	.000
Contrast Model					
Care	0.21	0.02	.23	.01	.000
Solicitation	0.07	0.01	.13	.003	.000
Disclosure	0.11	0.01	.29	.02	.000
Family activities	0.01	0.002	.13	.003	.000
Boy	-0.03	0.01	-.04	.002	.000
13-14 years	-0.03	0.01	-.03	.001	.001
15-16 years	-0.01	0.01	-.01	.00	.147
Promotion of autonomy	0.05	0.01	.06	.001	.000
Care x boy	-0.07	0.02	-.05	.001	.000
Promotion of autonomy x boy	-0.03	0.01	-.02	.00	.056
Solicitation x boy	0.04	0.01	.05	.001	.000
Disclosure x boy	0.00	0.01	.00	.00	.972
Family activities x boy	0.00	0.001	.003	.00	.815
Care x 13-14 years	0.01	0.02	.01	.00	.577
Promotion of autonomy x 13-14 years	-0.02	0.02	-.02	.00	.199
Solicitation x 13-14 years	0.01	0.01	.01	.00	.268
Disclosure x 13-14 years	-0.01	0.01	-.01	.00	.342
Family activities x 13-14 years	-0.01	0.002	-.04	.00	.011
Care x 15-16 years	-0.03	0.02	-.02	.00	.203
Promotion of autonomy x 15-16 years	0.05	0.02	.03	.00	.007
Solicitation x 15-16 years	-0.004	0.01	-.01	.00	.706
Disclosure x 15-16 years	0.002	0.01	.003	.00	.831
Family activities x 15-16 years	-0.004	0.002	-.03	.00	.050

TABLE IV

Multiple linear regression analysis on paternal knowledge from a national perspective

Predictor	*B*	*Error*	β	rs^2	*p*
Model adjusted					
Care	0.33	0.01	.33	.07	.000
Solicitation	0.11	0.004	.19	.03	.000
Disclosure	0.14	0.004	.25	.05	.000
Family activities	0.01	0.001	.08	.01	.000
Contrast Model					
Care	0.38	0.02	.37	.02	.000
Solicitation	0.07	0.01	.13	.003	.000
Disclosure	0.15	0.01	.28	.01	.000
Family activities	0.02	0.002	.15	.003	.000
Boy	0.01	0.01	.01	.00	.352
13-14 years	-0.04	0.01	-.04	.001	.000
15-16 years	-0.02	0.01	-.02	.00	.063
Promotion of autonomy	0.02	0.02	.02	.00	.299
Care x boy	-0.07	0.02	-.05	.001	.000
Promotion of autonomy x boy	-0.06	0.02	-.03	.001	.001
Solicitation x boy	0.03	0.01	.04	.001	.000
Disclosure x boy	-0.03	0.01	-.03	.00	.004
Family activities x boy	-0.004	0.002	-.03	.00	.020
Care x 13-14 years	-0.02	0.02	-.01	.00	.320
Promotion of autonomy x 13-14 years	-0.01	0.02	-.01	.00	.598
Solicitation x 13-14 years	0.03	0.01	.03	.00	.013
Disclosure x 13-14 years	-0.004	0.01	-.01	.00	.696
Family activities x 13-14 years	-0.01	0.003	-.04	.00	.002
Care x 15-16 years	-0.04	0.02	-.02	.00	.092
Promotion of autonomy x 15-16 years	0.04	0.02	.02	.00	.058
Solicitation x 15-16 years	0.04	0.01	.04	.001	.001
Disclosure x 15-16 years	-0.01	0.01	-.02	.00	.255
Family activities x 15-16 years	-0.004	0.003	-.02	.00	.143