

This is an Accepted Manuscript version of the following article, accepted for publication in European Journal of Developmental Psychology. Irene García-Moya, Carmen Moreno & Antonia Jiménez-Iglesias (2013) Building a composite factorial score for the assessment of quality of parent-child relationships in adolescence, European Journal of Developmental Psychology, 10:5, 642-648, DOI: [10.1080/17405629.2012.707781](https://doi.org/10.1080/17405629.2012.707781). It is deposited under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

## **Building a composite factorial score for the assessment of quality of parent-child relationships in adolescence**

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Short title: A quality of parent-child relationships measure

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Keywords: parent-child relationships, quality of family life, family, adolescence.

### **Acknowledgments**

The HBSC study in Spain has been funded by an agreement signed between the Spanish Ministry of Health, Social Policy and Equality, and the University of Seville (Spain). In addition, this work is supported by the Spanish Ministry of Education through the National Program FPU [grant number: AP2009-0978].

## **Abstract**

The quality of parent-child relationships has important implications for adolescent development and well-being. However, whereas numerous measures of specific dimensions contributing to quality of parent-child relationships are available, scales that provide a global assessment of this content are scarce. Consequently, the assessment of quality of parent-child relationships poses a challenge to the researcher, especially when the need exists to consider its main aspects but long instruments can not be used due to diverse circumstances. This paper presents a composite factorial score on quality of parent-child relationships developed from four short measures of affection, communication, parental knowledge and family satisfaction that can contribute to solve some of those difficulties. This composite score can be a useful tool to assess quality of parent-child relationships, especially for studies devoted to the study of the relationships between experiences within the family and the adolescent's well-being.

There is a high consensus in developmental psychology about the importance of good parent-child relationships for the adolescents' positive social and emotional development (Collins, Maccoby, Steinberg, Hetherington & Bornstein, 2000; Parke & Buriel, 2006). In fact, the quality of parent-child relationships has been found to be a crucial determinant of adolescents' adjustment and of the establishment of other meaningful close relationships beyond the family (Collins & Steinberg, 2006; Laursen & Collins, 2010).

The quality of parent-child relationships seems to be a result of a wide variety of family dimensions, among other: affection, open communication, parental knowledge, control, promotion of autonomy, conflict management, shared activities, cohesion or flexibility.

Studying the quality of parent-child relationships poses a challenge for the researcher because whereas there are many instruments focusing in specific dimensions, global measures of quality of family relationships are scarce. This confronts the researcher with the difficult task of choosing some of the aforementioned indicators, which besides has to be done by balancing the appeal of having the best measure possible with the frequent need to select short instruments, especially in broad studies.

On the other hand, although different models emphasize certain aspects over others, there seems to be remarkable coincidence regarding the key importance of the following three highly interrelated dimensions in promoting high-quality parent-child relationships: affection, communication and parental knowledge. In fact, parental affection has been underlined as one of the most important dimensions within the family context both as a key dimension in attachment development (López, 2006) and as a fundamental component of parenting styles (Steinberg, 2001). Similarly, open communication with

parents has been seen as a fundamental dimension in a positive family functioning (Noller & Bagi, 1985) while problems in family communication have been pointed out as very reliable predictors of dysfunctional family relationships (Olson et al., 1983). Finally, parental knowledge, which results from a trusting climate of family relationships facilitated by warmth, affection and communication, has also been conceptualized as a fundamental pillar in high-quality parent-child relationships (Kerr & Stattin, 2000).

Along with these three classical and intimately connected indicators of quality of parent-child relationships, satisfaction with family relationships is a global variable that can be considered an overall assessment of the climate of relationships within the family (Diener, 1984) and has been proven to be a useful indicator of family functioning, too (Scabini, Lanz & Marta, 1999). Thus, satisfaction with family relationships has been referred as a *blue print* which is closely related to the quality of parent-child interactions (Caprara, Pastorelli, Regalia, Scabini & Bandura, 2008).

Drawing on the developmental research commented on the previous paragraphs and on the experience from the Health Behaviour in School-aged Children study in using measures for some of the relevant dimensions in assessing quality of parent-child relationships for more than a decade, this study describe the procedure to obtain a quality of parent-child relationship composite score from four short well-known measures on affection, ease of communication, parental knowledge and satisfaction with family relationships.

## **Method**

### **Participants**

A representative sample of Spanish adolescents was selected as part of the 2010 edition of the WHO international survey Health Behaviour in School-aged Children (HBSC) in

Spain by means of a random multi-stage sampling stratified by conglomerates that took into account geographic area, type of school and educational level. The present study focused on the 6528 participants aged 13 to 18 that had answered to all the items on the family variables herein analysed after excluding the adolescents who reported not having or not seeing their father or mother.

## **Measures**

The HBSC 2010 Spanish questionnaire has been approved by the Experimentation Ethical Committee of the University of Seville, indicating that it complies with all the international ethical requirements for human research. For the purpose of this study the following measures on key family dimensions were selected:

Affection. This variable was assessed by means of the 4-item subscale of the *Parental Bonding Inventory-Brief Current form, PBI-BC* (Klimidis, Mina & Ata, 1992). This dimension includes the following items repeated for the mother and the father: 'helps me as much as I need', 'is loving', 'understand my problems and worries' and 'makes me feel better when I'm upset'. An average score from 0-'never' to 2-'almost always' was obtained from this scale.

Ease of communication with parents. Participants were asked 'How easy is it for you to talk to the following persons about things that really bother you?' An average score on ease of communication with parents was obtained that ranged from 1-'very difficult' to 4-'very easy'.

Parental knowledge. The measure of parental knowledge was based on the scale developed by Brown, Mounts, Lamborn and Steinberg (1993) that asks adolescents about

how much father and mother knows about five issues: 'who your friends are', 'how you spend your money', 'where you are after school', 'where you go at night', and 'what you do with your free time'. The average final score ranges from 0-'don't know anything' to 2-'know a lot', where higher values represents higher levels of parental knowledge.

Satisfaction with family relationships. This variable was measured by means of an item based on *Cantril's Ladder* (1965): 'In general how satisfied are you with the relationships in your family?' A quantitative score was obtained that ranged from 0-'We have very bad relationships in our family' to 10-'We have very good relationships in our family'.

### **Procedure**

Information was obtained by means of anonymous on-line questionnaires that were filled in by the students during a regular school-hour in accordance with the HBSC international standardized procedure.

### **Statistical analysis**

Prior to factorial analysis, the suitability of data for this kind of analytical technique was assessed. Thus, correlations among the variables were examined looking for significant correlations and values higher than .30 that would be indicative of high cohesion among the variables, a prerequisite for factorial analysis. In addition, a Kaiser-Meyer-Olkin test value of .60 or higher and a significant value in Bartlett's Test of Sphericity were required to support the factorability of the correlation matrix (Tabachnick & Fidell, 2001). After that, exploratory factor analysis using maximum verisimilitude method was conducted using SPSS 16. Secondly, the indicators were standardized and confirmatory factor analysis was conducted using EQS 6.1. Finally, the model goodness of fit was

evaluated. Given that caution has been recommended in the interpretation of the chi-square statistic due to its sensitivity to sample size, the most frequently reported alternative goodness of fit indices were used, too: CFI, NNFI and RMSEA. According to the criteria by Hu and Bentler (1999), NNFI and CFI values of 0.95 or higher and RMSEA values lower than 0.06 are desired in a good fitting model.

### **Results**

Correlations among the analysed family variables were higher than .30 and statistically significant (see Table 1) which fulfilled one of the prerequisites for the rest of the analyses. In addition, the exploratory factor analysis showed a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .77. and the Bartlett's test of sphericity was statistically significant ( $p < .001$ ), which supported the suitability of factor analysis.

Using the criteria of eigenvalues higher than 1 a single factor solution was obtained that accounted for 47.5% of the variance. The factorial loadings were .83 for affection, .61 for ease of communication, .59 for parental knowledge and .70 for satisfaction with family relationships. Similarity among the original correlations and the reproduced correlation matrix, and the resulting low values in the residual matrix (.01 or lower) also suggested that this solution was appropriate (see Table 1).

(Table 1 about here)

As a second step, confirmatory factor analysis was conducted and goodness of fit of the unidimensional model obtained in exploratory analysis was assessed. Chi-square results indicated an appropriate fit,  $X^2 = 5.695$ ,  $p = .058$ . In addition, alternative fit indices indicated a good fit, too: CFI= .99, NNFI= .99 and RMSEA= .02. Therefore, the

measurement model fitted well to a unidimensional configuration. The Cronbach's alpha for this 1-factor model was .774.

### **Discussion**

This article presents a unidimensional factorial score in the assessment of quality of parent-child relationships that is based in short measures of affection, communication, parental knowledge and family satisfaction.

This score showed a good reliability and has a good construct validity resulting from including as indicators the main elements in parent-child relationship functioning according to current research on developmental psychology.

However, this measure has some limitations, too. First, it has been developed in a sample of adolescents from two-parent families and, as a consequence, more research is needed about the possibilities of applying it to adolescents from other types of family structures. In addition, only the adolescents' reports are considered in measuring the quality of parent-child relationships, which means that this is a measure of quality of the relationships as perceived by the adolescents. Although it could be argue that this is an important source of bias, recent perspectives tend to see this as advantageous for those studies devoted to analyse the impact of experiences within the family in adolescent well-being (Laursen & Collins, 2010).

Therefore, once the former aspects are carefully taken into consideration, using this quality of parent-child relationship measure provides a good balance between including the main family dimensions in its assessment and not resulting in item overloading. In addition, working with this composite global score has the advantage of improving parsimony in

the model when the researcher is trying to integrate in the analysis a wide variety of individual and contextual influences.

For all those reasons, this score is seen by the authors as a potentially useful tool for researchers interested in studying quality of parent-child relationships, especially when the aim is to explore the relationships between family life experiences and the adolescent's development and well-being.

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Table 1

*Pearson-r correlations and reproduced correlation matrix*

	1	2	3	4
Affection	-	.504*	.495*	.580*
Ease of communication	<i>.509</i>	-	.361*	.435*
Parental knowledge	<i>.490</i>	<i>.360</i>	-	.398*
Family satisfaction	<i>.580</i>	<i>.426</i>	<i>.409</i>	-

Note: Reproduced correlations appear in italics under the central diagonal.

Residual matrix can be obtained by subtracting reproduced correlations from the original correlations among the variables.

\*  $p < .001$