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ORIGINAL PAPER

Psychometric Properties of the Alabama Parenting Questionnaire-Preschool Revision (APQ-Pr) in 3 Year-Old Spanish Preschoolers

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Abstract Parenting practices should be assessed and taken into account at an early age, since it is well documented that they are strongly related to children's development. This study provides data on the psychometric properties of a Spanish version of the Alabama Parenting Questionnaire for Preschool children (APQ-Pr). A community sample of 622 (310 boys and 312 girls) 3 year-old children and their parents, participated in the study. Data were obtained from parents' reports and correspond to a semi-structured diagnostic interview and self-report questionnaires evaluating parenting and children's psychological states. Confirmatory factor analysis supported a three-factor solution: positive parenting, inconsistent parenting and punitive parenting. These scales scores showed moderate to good internal consistence (omega values ranged from .54 to .86). Inconsistent parenting scores achieved the strongest associations with external measures of psychopathology, especially for externalizing and conduct problems, as well as for functional impairment, the poorest associations being for the positive parenting scores. Results support the validity of the Spanish APQ-Pr, which is potentially a useful measure for the study of parenting practices regarding preschool children and their relation to conduct problems.

Keywords Alabama Parenting Questionnaire · Conduct problems · Factor analysis · Parenting · Preschool assessment

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Introduction

Conduct problems are one of the most common reasons for children being referred to mental health services (Frick and Silverthorn 2001). They are complex problems, with a high comorbidity, with other problems, particularly Attention Deficit Hyperactive Disorder, and usually combine genetic and environmental etiological factors (Frick and McMahon 2008). Of the several environmental risk factors that have been associated with the development and maintenance of conduct problems in childhood, parenting practices are among the best established (Chamberlain and Patterson 1995; Dadds 1995; Patterson and Reid 1984). The most associated parenting practices include harsh discipline, inconsistent discipline, poor supervision, lack of involvement and rigid discipline (Chamberlain et al. 1997). Despite this strong association between parenting practices and conduct problems, it still has to be studied in terms of causality and more research is needed to test different models of that relation, as well as the possible differentiation between certain parenting practices and specific types of conduct disorder (Frick and McMahon 2008).

One of the most commonly used instruments in the study of the parenting practices related to conduct problems in childhood and adolescence is the *Alabama Parenting Questionnaire* (APQ, Frick 1991). The APQ is a 42-item questionnaire designed to measure parenting characteristics

that have been previously associated with disruptive behaviors in children between the ages 6 and 13. Five subscales were rationally derived on the basis of face validity: parental involvement, positive parenting, poor monitoring/supervision, inconsistent discipline and corporal punishment rated on a 5-point Likert-type scale (1 = *Never* to 5 = *Always*). Several studies tested the scale reliability of parents' ratings form. Shelton et al. (1996) in children from a clinical sample aged 9–13 and Dadds et al. (2003) in a community sample of children aged 4–9, obtained acceptable internal consistency for the scales with the exception of corporal punishment and poor monitoring (Cronbach's $\alpha = .46–.80$). Positive parenting and parental involvement scales were highly correlated ($r = .85$) suggesting that there was measurement overlap between the constructs. The APQ factor structure was assessed by Wells et al. (2000) in a sample of 579 children aged 7–9 with combined ADHD resulting in a three-factor solution: positive involvement, ineffective discipline, and deficient monitoring. Also, Essau et al. (2006), using the APQ as a self-report questionnaire answered by adolescents, presented a factor analysis of a general German population aged 10–14 that empirically supported the five specified parenting factors of the original parent version. Since its construction, cumulative evidence for the validity of APQ has been gathered, with APQ being seemingly sensitive to design interventions to treat conduct problems (Feinfield and Baker 2004; Lochman and Wells 2002; Wells et al. 2000). There is also a large body of evidence for the high association between APQ scales and conduct problems in clinically-referred children (Chi and Hinshaw 2002; Hinshaw 2002) and non-referred samples (Frick et al. 2003; Oxford et al. 2003).

There is now much evidence that the origins of aggressive behavior and conduct problems can be placed in preschool years (Barkley et al. 2002; Cunningham and Boyle 2002; Loeber and Farrington 2000; Sonuga-Barke et al. 2005). In this context, the need for adequate assessment in order to contribute to early detection and accurate intervention programs in preschool years has emerged. The changing relation between age and parenting practices should be taken into account and be reflected in the items when proposing a measure for preschoolers, since it is well documented that positive and negative parenting practices change over time (Frick et al. 1999; Regalado et al. 2004) and are strongly related to child development. Clearly some items in the original APQ are inappropriate for ages under 6. Clerkin et al. (2007) have explored the instrument properties with a version adapted to preschoolers (APQ-Pr), in a sample of hyperactive-inattentive and non impaired controls aged 3–6, obtaining a three-factor solution: positive parenting, inconsistent parenting and punitive parenting. To our knowledge, the work by Clerkin et al. (2007) is the only study proposing an adapted version for preschoolers. Although Dadds et al. (2003) included preschool samples in their studies; they used the original version addressed to older children.

Moreover, no preschool instrument dealing with this subject is available for the Spanish population. This study aims to test the factor structure of the APQ-Pr in a large Spanish community sample, as well as providing evidence for its validity in relation to external variables, in order to study the parenting practices that are most commonly related to conduct problems in the preschool population. Considering what we know from recent research, we expected association between problems in parenting, as considered on the APQ, and conduct problems. Also, we would expect a simpler factor structure that supports the overlapping between some of the five factors originally proposed which has been found in other studies using this instrument with preschoolers.

Method

Participants

Data used in this study correspond to the first year of a longitudinal study of vulnerability to behavioral problems in preschool children. The research was launched with a two-phase design, with an initial random sample of 2,283 children selected from all registered preschoolers (age 3) in Barcelona for the 2009–2010 academic year. Children with mental retardation or pervasive developmental disorders were excluded.

The proportion of participants in the first phase was 58.7 % ($N = 1{,}341$ families) and no differences were found by sex ($p = .95$) on comparing participants and refusals. However, the proportion of refusals was statistically higher for families in low socio-economic groups ($p < .001$). The screening for including children in the second phase was carried out with the parent Spanish version (Ezpeleta et al., in press) of the Strengths and Difficulties Questionnaire for 3 and 4 year-olds questionnaire (SDQ^{3-4}; Goodman 1997). All the children with a positive screening score and a random sample including 30 % of children with negative scores in the screening were invited to continue with the longitudinal research program. Cutoff for screen positive was a SDQ 3–4 score equal to or greater than 4 on the Conduct Problems scale (cutoff corresponding to Percentile 90 in community samples, considered the "abnormal band" scores) or a response option of 2 (certainly true) in any of the eight Diagnostic and Statistical Manual of Mental Disorders (4th ed. [DSM–IV]; American Psychiatric Association 2000) parent- reported oppositional defiant symptoms (four included in the SDQ 3–4 Conduct Problem scale, plus four items from the DSM–IV definition of ODD not included in the questionnaire but added to the list of questions with the

same response format). In the second phase of the research, all children with a positive screening score for behavioural problems ($n = 522$) and the random sample ($n = 235$) were invited to continue (the number of children needed into the negative screening score was calculated to guarantee statistical power for the further analyses). The final second-phase sample included 89.4 % of the families invited to continue ($N = 622$ children), and no statistical differences were found by sex ($p = .820$) or type of school ($p = .850$) on comparing participants and refusals. Children's mean age was 2.97 ($SD = 0.16$), 310 were boys (49.8 %), and 558 were white (88.9 %). Table 1 shows the characteristics of the sample. Children's mean age was 3.0 ($SD = 0.16$) and 310 were boys (49.8 %).

Measures

APQ The Alabama Parenting Questionnaire (Frick 1991)

The APQ-Pr consists of 42 adapted items from the original APQ, rated on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*always*). Eight items from the original questionnaire that we deemed inappropriate for preschoolers were adapted to age (see below). To clarify interpretation in this study, the original item numeration has been maintained. The APQ-Pr was available for 603 children (96.9 % of the sample). Respondents were parents (296 mothers, 33 fathers and 274 mother-father pairs). No statistical differences were found for sex ($p = .642$) or socioeconomic status ($p = .857$) when comparing children with completed or missing questionnaires.

Table 1 Sociodemographics of sample ($N = 622$)

Child's age (mean; *SD*)	2.97 (0.16)
Child's sex (n; %) male	310 (49.8 %)
Child's race/ethnicity (n; %)	
White	553 (88.9 %)
American Hispanic	49 (7.9 %)
Other	20 (3.2 %)
Single families	30 (4.8 %)
Mother's age (mean; *SD*)	36.4 (4.7)
Father's age (mean; *SD*)	38.6 (5.8)
Mother's education (n; %)[1]	
Graduate/university	340 (54.7 %)
Compulsory school (until 16 years)	178 (28.6 %)
Primary school (until 13 years)	92 (14.8 %)
Less	12 (1.9 %)
Father's education (n; %)[1]	
Graduate/university	281 (45.2 %)
Compulsory school (until 16 years)	196 (31.5 %)
Primary school (until 13 years)	122 (19.6 %)
Less	13 (2.1 %)
Family's socioeconomic status (Hollingshead 1975)	
High	205 (33.0 %)
Mean-high	195 (31.4 %)
Mean	88 (14.1 %)
Mean-low	99 (15.9 %)
Low	35 (5.6 %)

[1] Level of studies not available for 10 parents

The English version of the instrument was translated into Spanish after receiving permission from the author and was adapted to the children's age following the widely accepted guidelines from the the International Test Commission Guidelines for Translating and Adapting Tests (International Test Commission 2010) for the proper adaptation and use of instruments in assessment. Two bilingual clinical psychologists translated the questionnaire. Differences between translations were discussed and revised and the final result was reported to and accepted by the author.

As mentioned previously, Clerkin et al. (2007) used an adapted version of the original APQ consisting of a reduced version in which the items subjectively deemed inappropriate for preschoolers were eliminated prior to the application to parents. We preferred to substitute those items with developmentally adequate ones (items 6, 10 and 17 from positive parenting factor; 21, 28 and 30 from inconsistent parenting and 19 and 23 from punitive parenting). This enabled us to keep the original proposal's structure, but also avoid factors with a low number of items. We considered that the item should keep the "spirit" of the original scale and reflect similar behavior or parenting attitudes. For example, the original version of item 17 says: *Your child goes out with friends you don't know*, which was eliminated from Clerkin et al. (2007)'s version and our proposal is to say *You know who he usually plays with in the playground and know their families*).

The *Diagnostic Interview of Children and Adolescents for Parents of Preschool Children and Young Children (DICA-PPYC)* (Reich and Ezpeleta 2009) was used to assess children's psychopathology according to DSM-IV-TR taxonomy (American Psychiatric Association 2000). This interview has been recently adapted and validated for the Spanish preschool population with good psychometric properties (Ezpeleta et al. 2011). The diagnoses included in this study were attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD) and conduct disorder (CD). Subthreshold conditions were defined as cases that did not meet threshold criteria but indicated impairment.

The *Child Behavior Checklist* (Achenbach and Rescorla 2001) was used to measure behavioral and emotional problems in children. The version for children aged 1 and a half to 5 years contains 100 items reported by parents with

three ordinal response options (0-*not true*; 1-*somewhat or sometimes true*; and 2-*very true or often true*). The seven syndrome scales and the three broad scales were used in this study, whose Chronbach's alpha values ranged between poor ($\alpha = .42$ for scale somatic complaints) to excellent ($\alpha = .92$ for the total score).

The *Children's Global Assessment Scale* (CGAS; Shaffer et al. 1983) was used to assess global functional impairment based on children's psychopathology. The total score, which ranges between 0 (the highest impairment value) to 100 (the lowest impairment score) was used.

Procedure

The project was approved by the ethics review committee of the authors' institution. The heads of the schools participating, as well as the children's parents, received a complete description of the study. Families were recruited at the schools and gave written consent. All parents of children from P3 (3-year-olds) in the participating schools were invited to answer the SDQ^{3-4} at home and returned it to the schools. Families who agreed and met the screening criteria were contacted by telephone and interviewed at the school. Interviewers were previously trained and were blind to the children's screening group. After the interview, the interviewer completed the CGAS and parents answered the CBCL-$1^{1/2}$-5 and the APQ-Pr.

Statistical Analysis

Statistical analysis was carried out with SPSS19 for Windows and Mplus6. Because of the multistage sample, data corresponding to the second phase were analysed through Complex Samples tools in SPSS, creating a plan file with sampling weights inversely proportional to the probability of the participant being selected.

Confirmatory Factor Analysis (CFA) was conducted with Mplus6, using Weighted Least Squares Means and Variance (WLSMV), adjusted for the categorical data method of estimation. Covariance matrices were analyzed. Two models were tested: (a) the 42-item and three-factor model, including all the 42 initial items of the APQ and considering the three factors proposed by Clerkin et al. (2007) (positive parenting, inconsistent parenting, and punitive parenting); and (b) the 24-item and three-factor model, based on Clerkin's final results in preschoolers. Goodness-of-fit was assessed with the common-fit indices (Jackson et al. 2009): χ^2, Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). The later was selected as the primary index of model fit, as reported by Hu and Bentler (1998) and also by Yu and Muthén (2002) for ordered categorical variables and WLSMV method of estimation. The following thresholds were adopted: RMSEA less than .06 (Yu and Muthén 2002) and CFI greater than .90 are indicative of reasonable fit (Marsh et al. 2004). In addition, we took into account the magnitude and sign of the parameters (factor loadings) obtained. Internal consistency of the derived scores was measured through omega coefficient (McDonald 1999).

The association between APQ-Pr scale scores and raw scores on the CBCL was calculated with Pearson's correlation (r). Because of the large sample size and the high statistical power, small correlation values tended to be statistically significant, so the interpretation of coefficients was based on the own coefficient effect size: $|r| < .20$ slight relationship, between $.20 < |r| < .30$ low, and $|r| \geq .30$ good.

Binary logistic regressions analyzed the association between APQ-Pr scale scores (independent variables) and the presence of DSM-IV disorders (the whole sample was assigned a binary classification, according to the presence or absence of the diseases) and DSM-IV sub-threshold (this condition was considered present for children who showed the number of required symptoms for the disorder but for whom impairment was absent). Disorders considered for the analyses were: Attention Deficit and Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) and Any disruptive disorder if from any of those previously mentioned was present. The three empirical scale scores were entered together in the models in order to value the specific contribution of each factor to the possibility of each disorder appearing. The Area Under the Receiver Operator Curve (AUC, for ROC analysis) measured the discriminative accuracy of models. In logistic regression, the AUC is a measure of the power of the model's predicted values to discriminate between positive and negative cases, and is calculated through a ROC curve analysis by comparing predicted probabilities (saved for each final logistic regression) with binary classification in the criteria (presence-absence of the DSM-IV disorder) (Kleinbaum and Klein 2010).

The association between APQ-Pr scale scores and impairment (measured as CGAS total score) was analyzed through General Linear Models (GLM). The three empirical dimensions were entered simultaneously and the total predictive accuracy was evaluated using the R^2 coefficient.

Results

Factor Structure and Internal Consistency Reliability

The goodness-of-fit indices for the 24-item and three-factor model (Model B) were acceptable—χ^2 (249) = 685.4; RMSEA = .054 (90 % confidence interval [CI], .049; .059);

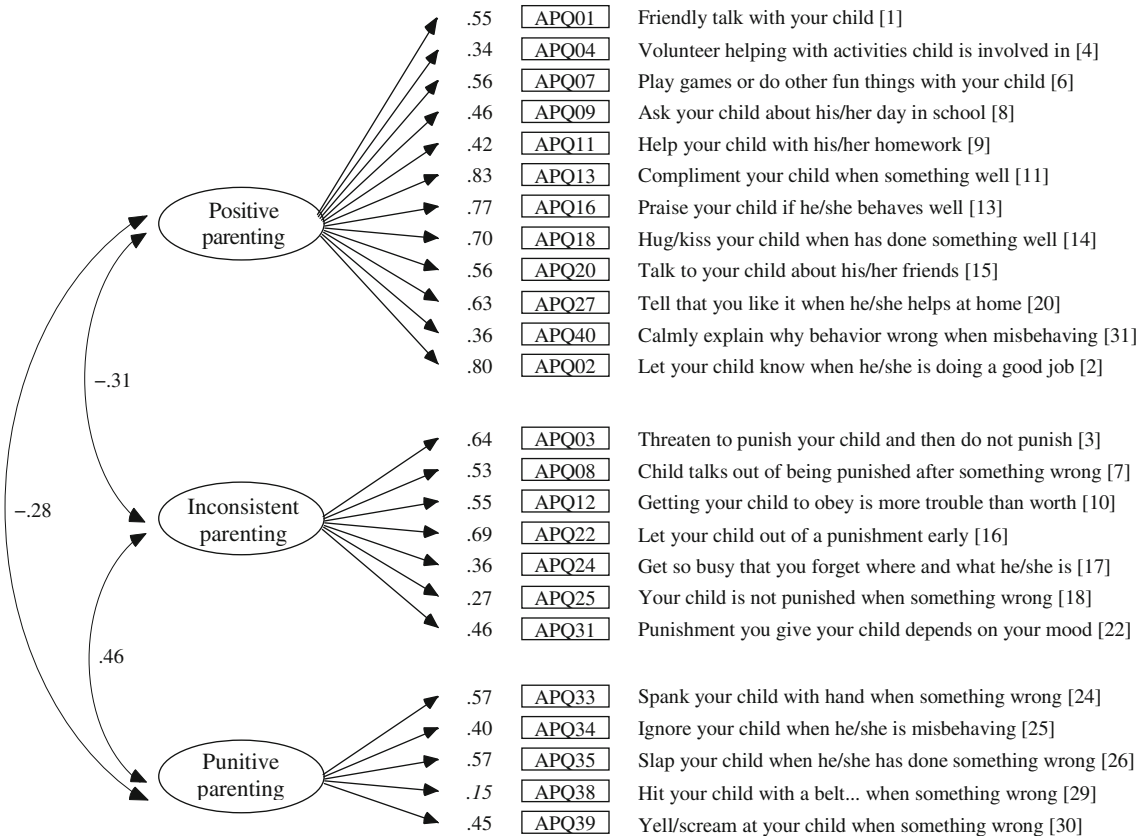

Fig. 1 Standardized solution with factor loadings and factor correlations. In *italics* parameters non-statistically significant ($p > .05$); in *brackets* Clerkin's APQ-PR numbering

CFI = .88—and better than those for the 42-item and three-factor model (Model A): χ^2 (776) = 1,873.1; RMSEA = .048 (90 % CI .046; .051); CFI = .76. In addition, almost a third of the parameters for model A were found to be unsatisfactory (factor loadings below .30 or non-statistically significant). In light of these results, we selected the 24-item and three-factor model (Model B, based on Clerkin's results in preschoolers), in which all item loadings were statistically significant ($p < .001$), their sign was consistent with the wording of the items, and exceeded the .30 value on their factor, with two exceptions: item 25 (inconsistent parenting: "Your child is not punished when he/she has done something wrong"; $\lambda = .27, p < .001$) and item 38 (punitive parenting: "You hit your child with a belt, switch, or other object when he/she has done something wrong"; $\lambda = .15$, $p = .053$) (Fig. 1). Internal consistency for model B scale scores was moderate-to-good: .86 for positive parenting, .70 for inconsistent parenting, and .54 for punitive parenting. The total score for each factor was obtained with the non-weighted sum of the item values, with higher scores indicating a greater presence of construct. Further analyses were based on these summated rating scale scores.

Association Between APQ-Pr Scores and CBCL

First block of Table 2 shows the Pearson's correlation coefficients evaluating the associations between APQ-Pr and CBCL. Positive parenting did not obtained significant or relevant correlations with CBCL profile. The other two APQ-Pr scores obtained many significant correlations (these results must be interpreted with caution due the high statistical power associated to the large sample size). The interpretation based on the effect size showed that the association between inconsistent and punitive parenting scores and CBCL aggressive behavior, externalizing and total scales was low (*r* coefficients into the range .24–.29). For the other measures considered, correlation coefficients were lower, supporting the discriminant validity of the APQ-Pr scores.

Second block of Table 2 shows again the association between APQ-PR factor scores and the CBCL profile, but with the General Linear Model to obtain the specific relationship between each APQ-PR factor and the outcomes. Positive parenting was positively associated with the presence of CBCL somatic level (as high the positive parenting score high the somatic score), punitive parenting

Table 2 Association between APQ-Pr dimensions and CBCL: pearson's correlations (*p* value)

APQ-Pr→	Pearsons' correlations					
	Positive		Inconsistent		Punitive	
	r	p^1	r	p^1	r	p^1
CBC: emotional	−.01	.890	.15	<.001	.19	<.001
CBC: anxious-depress	.00	.930	.16	<.001	.10	.012
CBC: somatic	.05	.856	.14	.001	.11	.009
CBC: withdrawn	−.04	.856	.16	<.001	.16	<.001
CBC: sleep problems	.02	.856	.17	<.001	.07	.094
CBC: attention probl.	−.05	.856	.17	<.001	.12	.005
CBC: aggressive beh.	−.05	.856	.25	<.001	.29	<.001
CBC: internalizing	.00	.928	.19	<.001	.18	<.001
CBC: externalizing	−.06	.856	.26	<.001	.27	<.001
CBC: total	−.01	.890	.25	<.001	.24	<.001

APQ-Pr→	General linear model									
	Positive			Inconsistent			Punitive			R^2
	B	95 %CI		B	95 %CI		B	95 %CI		
CBC: emotional	0.020	−0.02	0.06	**0.077***	0.01	0.15	**0.246***	0.11	0.38	.046
CBC: anxious-depress.	0.024	−0.02	0.06	**0.101***	0.04	0.17	0.106	−0.04	0.25	.033
CBC: somatic	**0.035***	0.00	0.07	**0.070***	0.03	0.12	0.103	−0.00	0.21	.033
CBC: withdrawn	0.003	−0.03	0.04	**0.059***	0.01	0.11	**0.138***	0.03	0.24	.040
CBC: sleep problems	0.043	−0.02	0.11	**0.149***	0.07	0.23	0.069	−0.11	0.25	.033
CBC: attention probl.	0.003	−0.04	0.04	**0.079***	0.03	0.13	0.097	−0.01	0.20	.035
CBC: aggressive beh.	0.037	−0.06	0.13	**0.317***	0.17	0.47	**0.855***	0.56	1.15	.118
CBC: internalizing	0.085	−0.03	0.21	**0.305***	0.12	0.49	**0.588***	0.21	0.96	.059
CBC: externalizing	0.034	−0.08	0.15	**0.396***	0.22	0.58	**0.951***	0.61	1.30	.114
CBC: total	0.232	−0.07	0.53	**1.046***	0.58	1.51	**2.104***	1.17	3.04	.098

* Bold: significant B-coefficient (.05 level)

[1] *p* value include Holm's correction for multiple tests

was related with CBCL emotional, withdrawn, aggressive, internalizing, externalizing and total score, and inconsistent parenting was a statistical predictor of all the CBCL scores. The global predictive accuracy of GLM was low to moderate for all the CBCL scales (R^2 into the range 3.3–9.8 %), except for aggressive behavior and externalizing (R^2 equal to 11.8 and 11.4 %).

Association Between APQ-Pr Dimensions and DSM-IV Disorders and Impairment

Table 3 shows the logistic models evaluating the association between the APQ-PR dimensions and the presence of disruptive disorders/subthreshold and the General Linear Models evaluating the association between APQ-Pr factors and number of symptoms and impairment (measured as the total CGAS score). APQ-PR factor scale scores were associated with all the criteria included in Table 3, except for the DSM-subthreshold for any disruptive disorder. Positive parenting was negatively associated to the presence of any disruptive disorder, ODD and CD (the higher the APQ-Pr score, the lower the odds of disorder). Inconsistent parenting score increased the odds for the presence of ADHD disorder, DSM-IV subthreshold of ADHD, (ODD) and (CD), the number of symptoms associated to any disruptive disorder and ADHD, and impairment. Punitive parenting was also associated with the presence of disruptive and ODD, DSM-IV subthreshold of ADHD and CD, the number of symptoms for any disruptive, ODD and CD, and the impairment level. The discriminative accuracy of logistic models was statistically significant and good for the presence of DSM-IV disorders (AUC between .65 and .67) and between poor to moderate for the presence of DSM-IV subthreshold (AUC from .56 to .62). Predictive

Table 3 Association between APQ-Pr dimensions and DSM disorders, symptoms and impairment

	Model		Positive parenting		Inconsistent parenting		Punitive parenting		
	Wald $F_{3,600}$	*p*	OR	95 % CI	OR	95 % CI	OR	95 % CI	AUC
DSM-disorders: logistic reg.									
Any disruptive	5.763	.001	**0.94***	0.89; 0.99	1.07	0.99; 1.15	**1.19***	1.00; 1.40	**.661***
Attention-deficit hyperactivity	3.658	.012	0.97	0.91; 1.03	**1.15***	1.03; 1.28	0.96	0.77; 1.20	**.670***
Oppositional-defiant disorder	4.656	.003	**0.94***	0.88; 0.99	1.06	0.97; 1.16	**1.25***	1.02; 1.52	**.664***
Conduct disorder	2.122	.096	**0.89***	0.80; 0.99	0.96	0.86; 1.08	1.18	0.86; 1.62	**.659***
	Model		Positive parenting		Inconsistent parenting		Punitive parenting		
	Wald $F_{3,600}$	*p*	OR	95 % CI	OR	95 % CI	OR	95 % CI	AUC
DSM-subthreshold: logistic reg.									
Any disruptive	2.386	.068	1.02	0.96; 1.07	1.06	0.99; 1.13	1.14	0.94; 1.38	.557
Attention-deficit hyperactivity	6.036	<.001	0.99	0.95; 1.04	**1.07***	1.00; 1.13	**1.25***	1.06; 1.46	**.621***
Oppositional-defiant disorder	3.206	.023	1.01	0.96; 1.06	**1.07***	1.00; 1.13	1.13	0.95; 1.35	**.569***
Conduct disorder	7.278	<.001	0.99	0.95; 1.05	**1.09***	1.03; 1.16	**1.21***	1.04; 1.41	**.623***
	Model		Positive parenting		Inconsistent parenting		Punitive parenting		
	Wald $F_{3,600}$	*p*	B	95 % CI	B	95 % CI	B	95 % CI	R^2
DSM-symptoms: GLM									
Any disruptive	7.919	<.001	−0.04	−0.12; 0.03	**0.15***	0.03; 0.26	**0.37***	0.14; 0.60	**.048***
Attention-deficit hyperactivity	5.203	.001	−0.03	−0.09; 0.02	**0.10***	0.02; 0.18	0.15	−0.01; 0.31	**.029***
Oppositional-defiant disorder	6.383	<.001	−0.01	−0.04; 0.03	0.04	−0.01; 0.08	**0.17***	0.08; 0.26	**.043***
Conduct disorder	3.624	.013	−0.00	−0.01; 0.01	0.01	−0.01; 0.03	**0.05***	0.01; 0.09	**.022***
Impairment: CGAS-total score	8.313	<.001	0.10	−0.19; 0.21	**−0.43***	−0.69; −0.18	**−0.81***	−1.38; −0.25	**.051***

GLM General linear model, *AUC* area under the ROC curve

* Bold: significant result (.05 level)

accuracy of linear models was significant but poor (R^2 between .02 and .05).

Distribution of APQ-Pr Scores

Table 4 shows the mean and standard deviation for the raw APQ-Pr scores. No statistical differences by sex appeared (Norms are available from authors).

Discussion

One of the main objectives of the study was to examine the factor structure of APQ-Pr, a modified version of the original APQ, in a large community sample of 3 year-old children. Overall, CFA supported the three-factor solution reported by Clerkin et al. (2007) in a clinical sample of preschoolers with ADHD and a community sample: Positive parenting, inconsistent parenting and punitive parenting. This 24-item and 3-factor version obtained reasonable fit, since RMSEA, which is considered the main index of model fit, was below .06 (Hu and Bentler 1998; Yu and Muthén 2002).

The positive parenting factor included items from two original factors theoretically proposed by Frick (1991), positive parenting and parenting involvement, indicating the substantial overlap between these two constructs, as pointed out by Dadds et al. (2003), Shelton et al. (1996), and Wells et al. (2000). The internal structure we obtained is different from that proposed by Essau et al. (2006) working with self-reporting adolescents' version. However, the structure obtained replicates that proposed by Clerkin's et al. (2007), also working with preschoolers, and is similar that of Wells et al. (2000) working with a 7–9 year-old clinical population. It seems that the three-factor solution is better for younger children and enhances the idea that relations between parenting practices change over time (Frick et al. 1999; Penelo et al. 2010). The difference in informants could also explain part of these differences.

Also different from what is reported in adolescents (Essau et al. 2006), no differences between parenting styles by sex were found in preschoolers, similar to the findings of Dadds et al. (2003) again indicating the need for

Table 4 Distribution of APQ-Pr scores

	Total ($N = 603$)		Girls ($N = 301$)		Boys ($N = 302$)		Sex
	Mean	*SD*	Mean	*SD*	Mean	*SD*	*p*
Positive parenting (12 items; 12 ÷ 60)	52.62	4.33	52.57	4.27	52.66	4.40	.840
Inconsistent parenting (7 items; 7 ÷ 35)	13.95	3.24	14.11	3.19	13.80	3.29	.291
Punitive parenting (5 items; 5 ÷ 25)	6.22	1.46	6.22	1.34	6.23	1.57	.942

Scale (no. items; minimum ÷ maximum)

developmentally prepared instruments to study the trends in parenting and their association with conduct problems (Frick et al. 1999). Not only the role of age but also the possible interaction with sex in particular conduct problems should be studied.

The validity of the APQ-Pr was also supported by the association with both dimensional and categorical measures of conduct problems. The association between CBCL's aggressive behavior and externalizing scales and inconsistent parenting specifically, indicates the adequacy of APQ-Pr for the study of the relation between parenting practices and this specific kind of problem as highlighted in past research (Burke et al. 2008; Cunningham and Boyle 2002; Chamberlain and Patterson 1995; Lanza and Drabick 2011). The associations found between different parenting styles and different problems, specifically between negligent and punitive practices and any disruptive disorder, the relation between positive parenting and the absence of conduct disorder or the association with subthreshold syndromes indicate that the APQ-Pr is an adequate instrument for use in the research of differential aspects of distinct conduct problems. The association between some parenting practices and poor functional impairment of children supports the idea that the APQ-Pr in its Spanish version is a potentially useful measure, as impairment related to conduct problems is a determinant factor for seeking help in Mental Health Services (Angold et al. 1998).

Our study is the first step towards studying the APQ-Pr instrument in our context, and has certain limitations. We studied a community sample where psychopathology is less common than in clinical populations, and this could have affected its discriminative power. In addition, families of low socioeconomic status participated in a lesser proportion than expected, and this could have led to some bias. In addition, mothers or fathers could indistinctly answer the questionnaires, so there may be differences in the internal structure, depending on the informant. The inclusion of parenting measures from a more direct method, as could be direct observation would have allowed us to discuss the possibility of social desirability or the wish to be perceived as "good parents" when answering this kind of questionnaire, but this possibility was conditioned by time and cost.

To the best of our knowledge, this is the first study regarding the Alabama Parenting Questionnaire, conducted with a large community sample of preschoolers. We think a major strength of our study is the large sample size. Data allow obtaining cut-off scores for Spanish 3 year-olds, as they belong to a large community sample, solving one weak point of APQ and most parenting measures: lack of norms (Essau et al. 2006). It is still necessary to study how these norms would generalize to other populations. The coincidence between the number and content of the factors with Clerkin's study using a USA sample suggests that this three-factor structure could at least work properly in Western societies. Thus, it seems reasonable to assume that the APQ-Pr maintains the same structure in preschoolers, but more research should be done in this direction.

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