

Development and Validation of a Short Form of the Alabama Parenting Questionnaire

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Abstract Brief assessments of parenting practices can provide important information about the development of disruptive behavior disorders in children. We examined the factor structure of a widely used assessment of parenting practices, the Alabama Parenting Questionnaire, and produced a 9-item short scale around its three supported factors: Positive Parenting, Inconsistent Discipline and Poor Supervision. The short scale was then validated in independent community samples using confirmatory factor analysis and measures of disruptive behavioral disorders in children. The scale showed good fit to a three-factor model and good convergent validity by differentiating parents of children with disruptive behavioral disorders and parents of children without such disorders. Results indicated that this new measure is an informative tool for researchers and clinicians whom require brief assessments of parenting practices relating to disruptive behavioral disorders in children.

Keywords Parenting practices · Disruptive behavior disorders · Alabama parenting Questionnaire · Externalizing problems · Children

Theories of social development posit that there is a relationship between the quality and consistency of parenting practices and emotional and behavioral problems in children. Previous research shows that deficiencies in parent's discipline and nurturance might be

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especially relevant to the emergence of disruptive behavioral problems, including attention deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD) and conduct disorder (CD; Dadds, 1995). Longitudinal data indicate that inconsistent, non-contingent, and harsh punishment, lack of supervision and lack of rewarding behaviors by parents are predictive of child externalizing problems (Dadds, 1995; Patterson, Reid, & Dishion, 1992). Examination of these aspects of parenting is clinically relevant because interventions for childhood disorders focus on improving parents' use of discipline and increasing parents' positive interactions with their children (Brestan & Eyeberg, 1998; Kazdin, 1995; Pelham, Wheeler, & Chronis, 1998; Sanders, 1999).

Unfortunately, much of the research on the linkages between parental behavior and child adjustment is fraught with inconsistent definitions and assessments of parenting. Self-report measures of global, attitudinal styles of parenting, parental stress, and parental efficacy are common but few measures tap both the positive and negative dimensions of parenting that might be relevant to the etiology and course of disruptive behavioral disorders (Darling & Steinberg, 1996). In a review of 76 questionnaires and 27 interviews measuring parental discipline, parental nurturance, or both, it was concluded that the majority of these measures focus on ineffective or problematic discipline and neglect (Locke & Prinz, 2002). The Child's Report of Parental Behavior Inventory is an exception in that it assesses parental involvement, use of positive strategies, and inconsistent discipline but it is only suitable for use with older children and it lacks items that assess supervision and harsh discipline (Schaefer, 1965).

The development of the Alabama Parenting Questionnaire (APQ) has advanced the assessment of parenting practices in clinical and research settings (Frick, 1991; Locke & Prinz, 2002; Shelton, Frick, & Wotton, 1996). The APQ measures five dimensions of parenting that are relevant to the etiology and treatment of child externalizing problems: (1) positive involvement with children, (2) supervision and monitoring, (3) use of positive discipline techniques, (4) consistency in the use of such discipline and (5) use of corporal punishment. The APQ has good psychometric properties including criterion validity in differentiating clinical and nonclinical groups (Dadds, Maujean, & Fraser, 2003; Frick, Christian, & Wooton, 1999; Shelton et al., 1996). Frick et al. (1999) reported a mean r^2 across its five scales of 0.24 for predicting child symptoms of ODD and CD.

Independent investigations have also shown the APQ to be an informative assessment tool. Colder, Lockman, and Wells (1997) used the APQ to study how children's activity levels moderate the influence of parenting practices on child aggression and found that that poorly monitored active boys and fearful boys who were exposed to harsh discipline exhibited high levels of aggression. The APQ was included in the National Institutes for Mental Health Collaborative Multisite Multimodal Treatment Study of Children with Attention Deficit/Hyperactivity Disorder (MTA Study; Wells et al., 2000). The MTA Study showed that treatment of ADHD by behavioral therapy, medication or both produced greater decreases in negative/ineffective discipline by parents than did standard community treatment. The MTA Study also showed that reductions in APQ-measured negative/ineffective discipline by parents mediated an improvement in children's social skills at school due to treatment (Hinshaw et al., 2000) and that APQ-measured corporal punishment was inversely related to behavioral measures of maternal responsiveness (Johnston, Murray, Hinshaw, Pelham, & Hoza, 2002).

The APQ appears to be useful for studying how parenting practices influence disruptive behavioral problems and how interventions or contextual influences on these problems are mediated or moderated by parenting (Hinshaw et al., 2000; Wells et al., 2000). However, with 42 items, the length of the APQ renders it unsuitable for intensive, repeated measurement of parenting practices that might reveal how these behaviors fluctuate across short time

intervals with other parental or child characteristics (c.f., Elgar, Waschbusch, McGrath, Stewart, & Curtis, 2004). Its length might also discourage researchers from including it in large assessment batteries thereby limiting what may be learned about the role of parenting in the ecology of disruptive behavior disorders. Critics of the MTA Study, for instance, identified assessment burden as a methodological shortcoming (Boyle & Jadad, 1999) and while this problem was not attributed solely to the APQ a shorter measure of parenting practices may have helped mitigate assessment burden and improve the quality of outcome data.

The aim of this study was to develop and evaluate a shortened version of the APQ that preserves its content coverage while limiting assessment burden when it is used repeatedly over short intervals or alongside other measures. Study I involved a principle components analysis of the APQ using data on a large community sample of parents and the selection of items that loaded highly onto a simple, interpretable set of factors. Studies II and III evaluated the psychometrics of the short form in independent community samples using confirmatory factor analysis and behavior disorder symptom criteria. We adhered to stringent guidelines for short scale development (Smith, McCarthy, & Anderson, 2000) and emphasized at the outset that the recommended application of the short form is to carry out brief assessments and not to replace the APQ. *A priori* estimates of internal consistency reliability, content overlap with the original scale, validity correlations with child symptoms, and amount of time saved were all calculated before the evaluations of the short form. Essentially, our goal was to develop a brief, reliable and valid alternative to a fuller assessment of parenting practices.

Study I

Methods

Participants

A community sample consisted of 1,402 parents (90.0% mothers) of 4- to 9-year-old children (M age = 6.27, SD = 1.12 years) whom attended 21 public schools in Brisbane, Australia's third largest city. The schools were chosen by state educational administration to represent the full range of inner city and suburban locations of differing socioeconomic status. Family incomes ranged from under \$20,000 (3.23%), \$20,000–30,000 (8.04%), \$30,000–70,000 (50.09%), to over \$70,000 (38.64%) (Australian dollars). Parents' education ranged from elementary school (0.09%) through a mode of "finished high school" (25.42%), to university educated (20.33%). Most families had two caregivers; 13.27% had single parents. The average number of siblings was 1.45 with 84.05% of children having two or fewer siblings. Most families were of European descent but minorities of Asian, Indigenous, and Pacific Island cultures were also present (< 10.00%). Completed questionnaires were returned by 66.67% of parents who were contacted. Permission to conduct the research was obtained from the Griffith University Human Research Ethics Committee and school administrators.

Measures

The APQ measures parenting practices that are considered to consistently relate to disruptive child behaviors (Frick, 1991). Thirty-five of its 42 items are scored in five domains: Positive Parenting, Poor Monitoring, Inconsistent Discipline, Involvement and Corporal Punishment. The seven remaining items measure discipline practices other than corporal punishment and

are included to avoid an implicit negative bias toward the corporal punishment items (Shelton et al., 1996). Items are scored from 1 (never) to 5 (always). In past research, the internal consistency reliability of the five scales has been moderate ($\alpha = 0.63$ to 0.80 ; Shelton et al., 1996). The APQ also has good criterion validity, especially the negative scales which show more deviant elevations for children with behavior disorders as compared to children without behavior disorders (Shelton et al., 1996).

Procedure

The APQ and a brief demographic survey were distributed to parents through schools. Information sheets and consent forms explained the nature of the research and the requirements of the participants. Completed questionnaires were sent directly to the investigators in pre-addressed envelopes with return rates ranging from 32.50 to 74.81% across schools ($M = 67.36\%$). Participants were not paid. Anecdotal data from the schools suggested that the low participation rate was in part reflective of the extent to which the school personnel and students co-operated in distributing the measures.

Data analysis

The factor structure of the APQ was examined using SPSS 12.0 (with the SPSS 12.0 Complex Samples module to account for sample clustering; SPSS Inc., Chicago, IL). SPSS syntax for parallel analysis and Velicer's (1976) minimum average partial (MAP) test were supplied by O'Connor (2000). These procedures are considered highly accurate methods for determining the dimensionality of a scale because they avoid the limitations of traditional principle components analysis whereby factors and eigenvalues can be influenced by data distributions (Glorfeld, 1995). Parallel analysis calculated the number of components that accounted for more variance than components derived from random data (O'Connor, 2000). The critical eigenvalue for parallel analysis was set at the 95th percentile and, to match the APQ data, 100 data sets with 1,402 cases and 35 random variables were generated in a Monte Carlo simulation. The MAP test calculates the relative amounts of systematic and unsystematic variance remaining in a correlation matrix after extractions of increasing numbers of components (O'Connor, 2000). Once the number of components in the APQ was calculated and verified by both procedures, item loadings and the percentage of variance accounted by each component were calculated using principal components analysis with varimax rotations, a method that maximizes the independence of factors (Bryant & Yarnold, 1995).

Results

No variations in parenting practices or data distributions were found owing to return rates or school sampling cluster. Descriptive statistics were compiled on the APQ and its five predetermined scales, Positive Parenting, Poor Monitoring, Inconsistent Discipline, Involvement and Punishment (Table 1). The internal consistency reliability of the scales ranged from $\alpha = 0.58$ (Poor Supervision, Punishment) to $\alpha = 0.77$ (Positive Parenting) and correlations between scales were consistent with their respective positive or negative valence.

Parallel analysis and Velicer's MAP test of the 35 APQ items both prescribed three factors that together explained 26.31% of the total variance (Table 2). The first factor was labeled "Positive Involvement," the second "Ineffective Discipline," and the third "Poor Supervision" because the items on the corresponding domains of the APQ were best represented

Table 1 Descriptive statistics and correlations among APQ factors

Scale	No. items	<i>M</i>	<i>SD</i>	Correlations					
				α	1	2	3	4	5
1. Involvement	10	40.79	4.39	.75	—	-.20	.56	-.20	-.17
2. Poor Supervision	10	11.88	2.70	.58		—	-.16	.27	.18
3. Positive Parenting	6	26.05	2.64	.77			—	-.17	-.07
4. Inconsistent Discipline	6	13.83	3.41	.74				—	.21
5. Punishment	3	5.62	1.61	.58					—

Note. $N = 1,402$. All correlations significant at $p < .01$.

by these factors. The two remaining domains, Involvement and Punishment, were represented by fourth and fifth factors respectively but neither parallel analysis nor Velicer's MAP test supported these factors. A 9-item short scale (APQ-9) was constructed by identifying the three highest loading items from each supported factor. Nine items were expected to provide adequate coverage of the three factors with a meaningful reduction in assessment time. The range of possible scores on the three-item scales is 0 to 15. Correlations between the APQ-9 scales and corresponding APQ domains were $r(1,402) = 0.89$ (Positive Parenting), $r(1,402) = 0.90$ (Inconsistent Discipline) and $r(1,402) = 0.76$ (Poor Supervision), all $ps < 0.01$. This smaller array of items showed lower internal consistency than the APQ ($\alpha = 0.44$ as compared to $\alpha = 0.65$) and item analysis indicated that none of items from the Involvement and Punishment domains were included in the APQ-9.

Discussion

Principle components analysis of the APQ supported a three-factor solution that, unlike what was found in the MTA Study (Hinshaw et al., 2000), did not include items measuring positive involvement and punishment. Whilst practical or legal considerations may sometimes favor dropping punishment content from parent assessments, this omission is a potential pitfall in light of the large volume of evidence that links parental involvement and punishment to child behavioral problems (Gershoff, 2002). On the other hand, the results also indicated that APQ items in these two domains were empirically redundant to the three supported factors: Positive Parenting, Inconsistent Discipline and Poor Supervision. The next phase of the study evaluated whether the APQ-9 could provide efficient, informative assessments of these domains.

The results of Study I facilitated *a priori* calculations of (1) the reliability of the short scales, (2) the content overlap between the short scales and the APQ, (3) validity correlations between the short scales with symptom criteria, and (4) the amount of time saved by using the short form. Verifying these calculations satisfy the four outstanding criteria for short form development (Smith et al., 2000). First, the APQ-9 was expected to show good criterion validity albeit at the cost of reduced reliability. With an average internal consistency reliability across the APQ scales of $\alpha = 0.68$, the Spearman-Brown formula (Smith et al., 2000) predicts that 3-item subscales will show an internal consistency of $\alpha = 0.44$. Some reduction in internal consistency is not necessarily problematic when the goal is to span a broad domain using few items. Items with high item-total correlations often share a considerable proportion of variance in common, so any subtest containing these items is unlikely to explain the most variance in the original test score. Indeed, it is possible to inadvertently create a "narrower"

Table 2 Factor loadings of the APQ

	Component		
	Positive parenting	Inconsistent discipline	Poor supervision
1. Friendly talk	.57	-.13	.03
2. Tell good job ^a	.77	-.13	.00
3. Threaten but don't punish ^a	-.02	.74	.04
4. Volunteer for child's activities	.11	-.03	-.02
5. Reward	.39	.18	.03
6. Child fails to leave a note ^a	-.11	.11	.62
7. Play/fun	.41	-.16	-.05
8. Child talks out of punishment ^a	.07	.63	.22
9. Ask about school	.36	.01	-.09
10. Child stays out too late ^a	-.06	.07	.75
11. Help with homework	.14	.02	-.02
12. Obedience is not worth it	-.21	.58	.12
13. Compliment ^a	.76	-.10	-.10
14. Ask plans	.38	-.10	-.03
15. Drive to special activity	.24	.03	-.01
16. Praise ^a	.79	-.04	-.02
17. Don't know child's friends ^a	-.03	.05	.65
18. Hug or kiss	.67	-.04	-.13
19. Child goes out without curfew	-.03	.01	.58
20. Talk about friends	.54	.07	-.09
21. Child out late without adult	.00	.00	.56
22. Let out of punishment early ^a	-.02	.74	.02
23. Child plans family activities	.37	-.10	-.06
24. Forget where child is	-.09	.12	.15
25. Child not punished	-.17	.62	.02
26. Attend school meetings	.01	-.05	-.02
27. Appreciate child's help	.61	-.06	.02
28. Don't check after school	.00	.13	.31
29. Don't tell where you go	-.03	.07	-.09
30. Child comes home 1 hr late	-.02	.03	.16
31. Punish depending on mood	-.18	.53	-.10
32. Child home w/o supervision	-.08	.08	.14
33. Spank	-.04	.15	.02
35. Slap	-.04	.05	.07
38. Hit child with belt	-.01	.00	.02
Eigenvalues	4.17	2.71	2.32
Percentage of Total Variance	11.92	7.75	6.64

Note. $N = 1,402$. Loadings greater than 0.40 are shown in boldface.

^aIncluded in the APQ-9 (Appendix).

measure with suppressed validity coefficients by maximizing reliability in a short scale. Boyle (1991) recommended modest reliabilities ($\alpha = 0.65\text{--}0.75$) when the construct being measured is broad. And because the short scale was composed of items showing high factor loadings instead of items selected at random, we expected to find internal consistency reliability in the APQ-9 scales to be similar to those in the APQ. Second, the content of the APQ-9 spans the three supported factors of the APQ thereby covering its essential content

however the degree of content overlap between the short scale and the original is essentially three out of five domains. Third, based on the mean correlation between the APQ and the short scales ($r = 0.85$) and data previously published on correlations between the APQ and child symptoms ($r = 0.49$; Frick et al., 1999), we estimated an *a priori* validity correlation between the short scales and child symptoms to be $0.85 \times 0.49 = 0.42$ or 18% shared variance. Finally, by reducing the number of items from 42 to nine (by 78.57%) it was estimated that the APQ-9 could be completed in about one-fifth the time that it takes to complete the APQ. We could not measure the amount of time parents used to complete the assessments but based on previous studies it was expected most parents could complete the APQ-9 in less than 1 min.

To summarize, parent data collected using the APQ loaded highly onto a simple, three-factor solution. These three factors formed the basis of a nine-item short scale, the APQ-9. The next phase of the evaluation of this short scale was to test its criterion validity and other psychometric properties in independent samples of parents.

Study II

Methods

Participants

Data were collected from the parents of pupils at eight public schools in a large school district in Nova Scotia, Canada. Schools were chosen to represent locations throughout the participating school district and were enrolled in an intervention program designed to prevent and treat disruptive behavior in elementary school children (Waschbusch, Pelham, & Massetti, 2005). Only the data from baseline assessments were analyzed. Of 2,582 surveys that were distributed through the schools, 1,367 (52.94%) families returned surveys. In these families were 602 female children and 614 male children ages five to 12 years ($M = 8.01$, $SD = 1.95$). The mean number of children per family was 2.41 ($SD = 1.11$). Respondents included 1,296 mothers and 745 fathers. The majority of mothers (96.14%) and fathers (86.04%) were birth parents. Educational attainment of the parents ranged from no high school (11.27% of mothers, 17.18% of fathers), high school (30.72% of mothers; 27.79% of fathers), technical school or college (32.02% of mothers; 31.95% of fathers) to university graduate (25.96% of mothers; 22.56% of fathers). Most families were of European descent but minorities of African Canadian, Asian and Aboriginal cultures were also present (< 20.00%). The research methods of Study II were approved by the Human Ethics Review Board of Dalhousie University, the participating school board, and school principals.

Measures

Instruments included the APQ, the Assessment of Disruptive Symptoms—DSM-IV (ADS-IV; Waschbusch, Sparkes and Northern Region Partners in Action for Children and Youth, 2003), the Conduct Disorder Rating Scale (CDRS; Waschbusch & Elgar, *in press*). The ADS-IV is a parent assessment of child symptoms of ADHD (inattentive type and hyperactive/impulsive type) and ODD as defined by the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). For each symptom, mothers and fathers separately evaluated how their child compares to other children of the same age and sex, using the following anchors: 0 = much less than

other children, 1 = less than other children, 2 = same as other children, 3 = more than other children, and 4 = much more than other children. Parents also indicated impairment due to symptoms and an estimated age of onset for each group of symptoms. The data from mothers and fathers were combined on a symptom by symptom basis so that each symptom was scored when either parent reported that it was present more often than in other children, as has been recommended (Piacentini, Cohen, & Cohen, 1992). The ADS-IV provided continuous scores for ADHD-inattentive symptoms, ADHD-hyperactive/impulsive symptoms and ODD symptoms. Classification criteria for ADHD conditions were six or more symptoms causing at least moderate problems and classification criteria for ODD were four or more ODD symptoms causing at least moderate problems. In previous research, the internal consistency reliability of the ADS-IV was high for mothers and fathers ($\alpha > 0.92$) and the scale showed significant convergent validity using the IOWA Connors rating scales (Pelham, Milich, Murphy, & Murphy, 1989) as criteria (Waschbusch et al., 2003).

The CDRS is a parent assessment of child symptoms of conduct disorder (CD) as defined by the DSM-IV Waschbusch and Elgar, (in press). Parents evaluated how often the child exhibited 15 symptoms over the past 12 months using the following anchors: 0 = never, 1 = once, 2 = monthly, 3 = weekly, and 4 = daily. Like the ADS-IV, parents reported impairment due to symptoms and estimated the age of onset and the data from mothers and fathers were combined on a symptom-by-symptom basis. Continuous scores were computed by averaging ratings across symptoms and a categorical score based on whether or not three or more symptoms of CD were present during the past 12 months. The CDRS has been demonstrated to have adequate reliability and validity.

Procedure

Teachers distributed sealed packages containing the APQ, ADS-IV, CDRS and a cover letter to pupils to deliver to all eligible parents. The parents returned completed questionnaires to schools in sealed envelopes where they were subsequently collected by researchers. Information sheets and consent forms were included explaining the nature of the research and the requirements of the participants.

Data analysis

Only those APS data from the items that made up the APQ-9 were analyzed. Descriptive statistics and correlations were performed using SPSS 12.0 (SPSS Inc., Chicago, IL). Confirmatory factor analysis of the APQ-9 to a three-factor model was analyzed separately for mothers' and fathers' data using EQS 6.1 (Multivariate Software, Encino, CA). One-tailed Dunnett *t*-tests were performed with a cumulative Type I error rate set at 0.05 to compare parenting practices in diagnostic groups to parenting practices in a control group.

Results

No variations in parenting practices, child symptoms or data distribution were found owing to school sampling cluster or parents' education. Descriptive statistics of the APQ-9 are displayed in Table 3. The internal consistency reliability of the APQ-9 scales was moderate, $\alpha = 0.59$ to 0.79 in mothers and $\alpha = 0.63$ to 0.84 in fathers. Mean scores on the Positive Parenting scale were near the upper limit of 15, indicative of a possible ceiling effect. Conversely, mean scores on the Poor Supervision scale were near the lower limit of 0, indicative of a possible floor effect.

Table 3 Descriptive statistics and correlations among APQ-9 Factors

Scale	No. items	<i>M</i>	<i>SD</i>	α	Correlations		
					1	2	3
Mothers (<i>n</i> = 1,296)							
Positive Parenting	3	13.78	1.50	.79	—	-.10**	-.17**
Inconsistent Discipline	3	7.41	2.30	.72	—	—	.23**
Poor Supervision	3	3.93	1.54	.59	—	—	—
Fathers (<i>n</i> = 745)							
Positive Parenting	3	13.14	1.79	.84	—	-.07	-.17**
Inconsistent Discipline	3	7.15	2.12	.65	—	—	.23**
Poor Supervision	3	3.98	1.52	.63	—	—	—

* $p < .05$; ** $p < .01$.

The three-factor model of the APQ-9 showed good empirical fit to the data collected from mothers and from fathers. Results from confirmatory factor analyses are shown in Fig. 1. In mothers, estimations of model fit were high, $\chi^2(24) = 55.96$, $p < .01$, Bentler-Bonett Normed Fit Index (NFI) = 0.98, Comparative Fit Index (CFI) = 0.99, and estimations of error were low, standardized root mean square residual (RMR) = 0.03, 90% CI = 0.02 to 0.04. In fathers, estimations of model fit were also high, $\chi^2(24) = 37.87$, $p = .04$, NFI = 0.98, CFI = 0.99, and estimations of error were low, RMR = 0.03, 90% CI = 0.02 to 0.05. These models showed statistically significant but weak relations between factors, which are consistent with good convergent and divergent validity in these separate but related constructs.

Correlations among the three factors of the APQ-9 were moderate and similar to the correlations among APQ factors found in Study 1 (Table 3). The three APQ-9 scales were also related to symptoms of ADHD and ODD/CD (Table 4). The strength of these associations was low but did show positive correlations between symptoms and Inconsistent Discipline and Poor Supervision and negative correlations between symptoms and Positive Parenting.

To test the convergent validity of the APQ-9, parents of children that screened positive for either ODD/CD or ADHD were compared to parents of a control group of no-disorder children with regard to parenting practices (Table 5). Notable differences emerged between these groups. Compared to mothers of children without a behavior disorder, mothers of children diagnosed with ODD/CD and mothers of children with comorbid ADHD and ODD/CD conditions reported less positive parenting, less consistent discipline and poorer supervision. No differences were found in parenting practices between mothers of ADHD children and no-disorder children. In fathers, only the negative scales, Inconsistent Discipline and Poor Supervision, distinguished disorder and no-disorder groups. Here, fathers of ODD/CD children reported poorer supervision of their children than fathers of children without a behavior disorder and fathers of children diagnosed with both ODD/CD and ADHD conditions reported less consistent discipline and poorer supervision. The APQ-9 did not distinguish between parents of ADHD children and parents of no-disorder children.

Discussion

In Study II, the factor structure, reliability and criterion validity of the APQ-9 were tested using data from the APQ and measures of child symptoms. The results were encouraging. First, despite its brevity, the internal consistency reliability of the APQ-9 was higher than

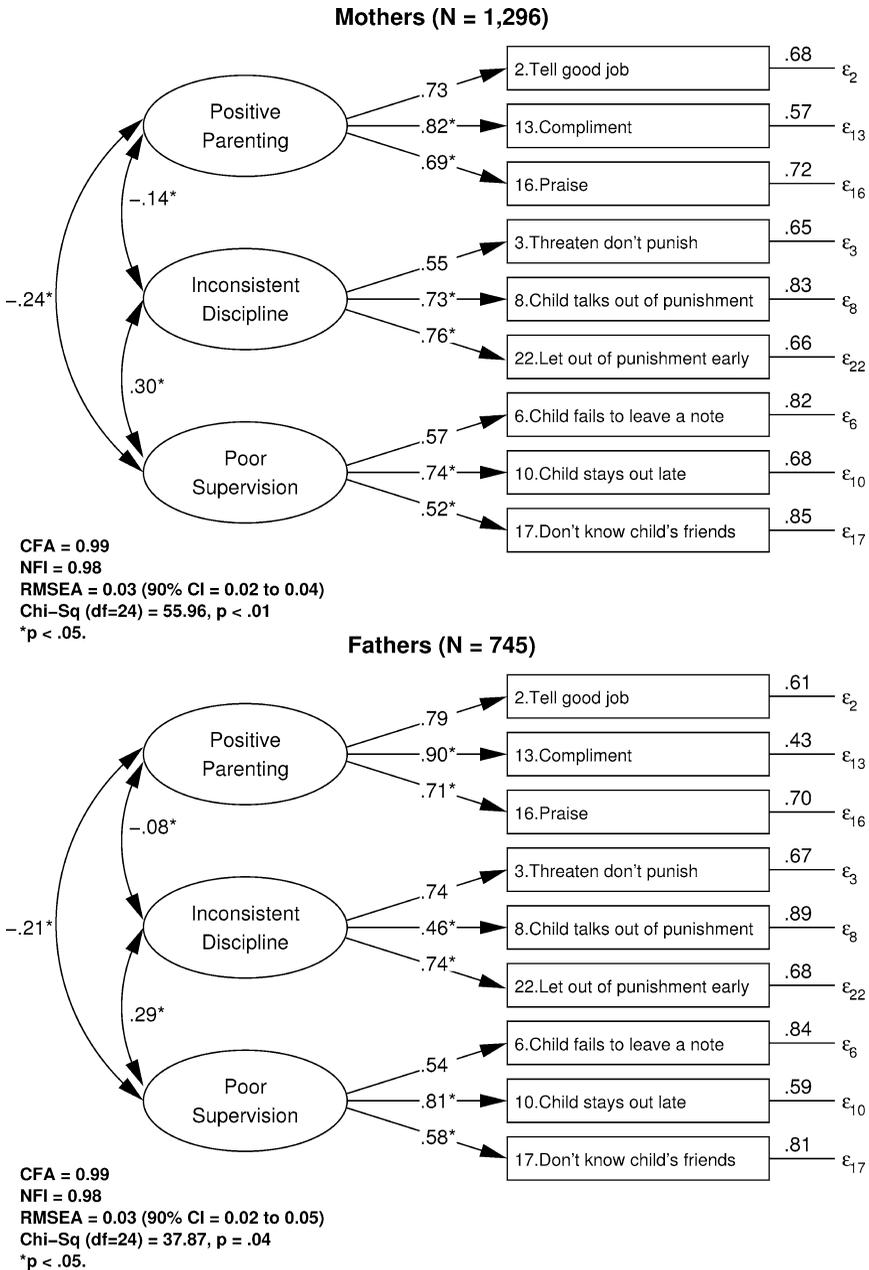


Fig. 1 Confirmatory factor analysis of APQ-9 in mothers (above) and fathers (below)

Table 4 Correlations between APQ-9 factors and disruptive child behavior

	Mothers (<i>n</i> = 1,296)			Fathers (<i>n</i> = 745)		
	Positive parenting	Inconsistent discipline	Poor supervision	Positive parenting	Inconsistent discipline	Poor supervision
ADHD-HYP	-.12**	.16**	.12**	-.13**	.16**	.18**
ADHD-INAT	-.18**	.14**	.18**	-.16**	.16**	.22**
ODD	-.19**	.23**	.19**	-.11**	.22**	.23**
CD	-.12**	.15**	.23**	-.07	.16**	.23**

Notes. ADHD-HYP: Attention Deficit Hyperactivity Disorder: Primarily Hyperactive Type; ADHD-INAT: Attention Deficit Hyperactivity Disorder: Primarily Inattentive Type; ODD: Oppositional Defiant Disorder; CD: Conduct Disorder.

p* < .05; *p* < .01.

expected. The Poor Supervision factor showed the lowest internal consistency ($\alpha = 0.59$ in mothers, $\alpha = 0.63$ in fathers) but this reduction in alpha coefficients likely reflects the shorter length of the scale rather than increased error variance. Unless each item was essentially a rephrasing of the others, alpha coefficients would likely indicate that a large proportion of variance is not part of a “true score” of a single construct and is therefore error (Boyle, 1991).

Second, confirmatory factor analysis showed that the three factors in the APQ-9 was an accurate representation of its data in mothers and in fathers. Positive Parenting, Inconsistent Discipline and Poor Supervision can thus be interpreted as related but distinct dimensions of parenting. The omission of Positive Involvement and Punishment items might be seen as a constriction in coverage but an important advantage of the APQ-9 over the APQ is a

Table 5 APQ-9 scale means (95% CI) by diagnostic group compared to control group

	<i>n</i>	Positive parenting	Inconsistent discipline	Poor supervision
Mothers (<i>n</i> = 1,296)				
ADHD-INAT	37	14.03 (13.53 to 14.52)	7.38 (6.63 to 8.13)	3.92 (3.34 to 4.49)
ADHD-HYP	12	14.08 (13.30 to 14.87)	7.83 (6.51 to 9.16)	3.92 (3.13 to 4.70)
ADHD-COM	4	13.00 (9.10 to 16.90)	7.00 (4.40 to 9.60)	5.00 (2.75 to 7.25)
ODD/CD	110	13.34 (13.00 to 13.67)**	8.25 (7.84 to 8.66)**	4.54 (4.21 to 4.88)**
ADHD + ODD/CD	58	13.21 (12.75 to 13.67)*	8.41 (7.71 to 9.12)**	4.76 (4.21 to 5.30)**
Control	1,035	13.83 (13.74 to 13.92)	7.27 (7.13 to 7.41)	3.82 (3.73 to 3.90)
Fathers (<i>n</i> = 745)				
ADHD-INAT	20	13.60 (12.90 to 14.30)	7.45 (6.39 to 8.51)	3.75 (3.30 to 4.20)
ADHD-HYP	7	12.29 (10.90 to 13.67)	8.00 (5.55 to 10.45)	5.17 (2.48 to 7.86)
ADHD-COM	2	13.50 (-5.56 to 32.56)	6.50 (0.15 to 12.85)	4.00 (4.00 to 4.00)
ODD/CD	63	12.72 (12.22 to 13.23)	7.66 (7.10 to 8.21)	4.75 (4.29 to 5.20)**
ADHD + ODD/CD	32	12.81 (11.99 to 13.63)	8.28 (7.62 to 8.94)*	5.40 (4.60 to 6.20)**
Control	606	13.19 (13.05 to 13.33)	7.03 (6.86 to 7.20)	3.82 (3.71 to 3.93)

Notes. Dunnett *t* (2-sided) tests were used to compare ADHD and ODD/CD groups to control groups with cumulative Type I error set at .05. ADHD-INAT: Attention Deficit Hyperactivity Disorder: Primarily Inattentive Type; ADHD-HYP: Attention Deficit Hyperactivity Disorder: Primarily Hyperactive Type; ODD/CD: Oppositional Defiant Disorder or Conduct Disorder; ADHD + ODD/CD: Attention Deficit Hyperactivity Disorder (any type) and either Oppositional Defiant Disorder or Conduct Disorder.

p* < .05; *p* < .01

robust factor structure that permits three domains of parenting to be measured reliably and considered independently in research or clinical contexts.

Third, parenting practices were related to child symptoms in the expected direction albeit not as strongly as expected. Unlike the predicted 18% shared variance between parenting practices and child symptoms, the correlations shown in Table 4 indicate just 1–5% shared variance. Still, the differences in parenting practices between clinical and non-clinical groups were consistent with results of previous studies (e.g., Colder et al., 1997; Johnston et al., 2002). Parents of children with ODD or CD showed less consistent discipline and poorer supervision than parents of children without a behavior disorder. That APQ-9 did not distinguish between parents of ADHD children and parents of non-ADHD children is consistent with research that indicates that parenting and ADHD may not be related once corporal punishment is taken into account (Johnson & Mash, 2001).

These results indicate that the reliability of the APQ-9 was adequate but its validity correlations were low. The factor structure of the short scale was supported and its convergent validity in relation to mother- and father-rated symptoms of ODD/CD was also good (particularly the negative scales). Still, further research is needed in which the APQ-9 is administered as a stand-alone measure and is validated against a more widely used assessment of child symptoms. These two issues were addressed in Study III.

Study III

Methods

Participants

A community sample consisted of 133 parents (90.98% mothers) of 5- to 18-year-old children (M age = 8.94, SD = 2.31 years) whom attended four public schools in Winnipeg, Manitoba, Canada. The schools were chosen by a local school authority to represent differing inner city and suburban locations of differing socioeconomic status. Of 1,500 surveys that were distributed through these schools, just 133 (8.87%) were returned. In these families were 68 (51.13%) female children and 65 (48.87%) male children. The mean number of children per family was 2.57 (SD = 1.02). Education in parents ranged from some high school or less (n = 22, 16.6%), high school graduate and some community college or university (N = 51, 39.2%), to at least one university degree or professional school diploma (N = 57, 42.9%). Family income was not measured however the mean Hollingshead (1975) four-factor score was 44.48 (SD = 13.51, Range = 8 to 66) representing a low to moderate socio-economic status. Ethnicity was not measured. The Ethics Review Board of the University of Manitoba and local school authorities approved the research procedures.

Measures

The APQ-9 was administered as a stand-alone instrument using the same instructions and response scales as the APQ (Appendix). Also administered was the Conners Parent Rating Scale—Revised (CPRS-R), an 80-item measure of DBDs and other behavioral problems in children age 3 to 17 (Conners, Sitarenios, Parker, & Epstein, 1998). The CPRS-R has good internal reliability coefficients, high test-retest reliability, and effective discriminatory power (Conners et al., 1998). It measures symptoms in seven domains: Oppositional, Cognitive Problems/Inattention, Hyperactivity, Anxious-Shy, Perfectionism, Social

Problems, and Psychosomatic. Symptoms were rated on a four-point scale (0 = never or seldom; 1 = occasionally; 2 = often or quite a bit; 3 = very often or very frequent). These scales showed good internal consistency reliability in previous surveys ($\alpha = 0.75\text{--}0.93$) and good criterion validity against DSM-IV diagnoses (Conners et al., 1998).

Procedure

The APQ-9, CPRS-R and a brief demographic survey were distributed in sealed packages to parents through the schools. A cover letter explained that participation was anonymous and that responses would be confidential. Completed questionnaires were returned by mail directly to the researchers. Parents were given the option of providing a mailing address with their completed measures in exchange for a \$5.00 grocery coupon.

Results

Descriptive statistics and correlations were calculated using SPSS 12.0 (SPSS Inc., Chicago, IL). As in Studies I and II, no differences in parenting practices, child symptoms or data distributions were found owing to school cluster. Because of the small sample size, data collected from mothers and fathers were pooled and analyses were limited to the internal consistency of the APQ-9 and correlations with symptom ratings. Mean scores, alpha coefficients and correlations between APQ-9 scales are shown in Table 6. Mean scores on the Positive Parenting scale were near the upper limit of 15, again indicative of negatively skewed data. The internal consistency of the scales was moderate, ranging from $\alpha = 0.57$ (Positive Parenting) to $\alpha = 0.62$ (Inconsistent Discipline). Correlations between the scales were low but consistent with their negative or positive valance and similar to those in Studies I and II.

Descriptive statistics and alpha coefficients on CPRS-R symptoms ratings and correlations between symptoms and parenting practices are shown in Table 7. Symptom ratings showed high internal consistency ranging from $\alpha = 0.80$ (Psychosomatic) to $\alpha = 0.92$ (Oppositional). Child symptoms were negatively correlated with Positive Parenting and positively correlated with Inconsistent Discipline and Poor Monitoring. Oppositional symptoms, which correspond to DSM-IV symptoms of ODD and CD, correlated with all three APQ-9 scales, $r(132) = -.20, p < .05$ (Positive Parenting), $r(132) = 0.31, p < .01$ (Inconsistent Discipline) and $r(132) = .20, p < .05$ (Poor Supervision). Hyperactivity was not significantly related to Positive Parenting but was related to Inconsistent Discipline, $r(132) = 0.35, p < .01$, and Poor Supervision, $r(132) = 0.38, p < .01$. These correlations were indicative of 12–14% shared variance.

Table 6 Descriptive statistics and correlations among APQ-9 factors ($n = 133$)

Scale	No. items	<i>M</i>	<i>SD</i>	α	Correlations		
					1	2	3
Positive Parenting	3	13.49	1.55	.57	—	-.11	-.27*
Inconsistent Discipline	3	7.11	2.26	.62		—	.38*
Poor Supervision	3	4.33	1.97	.61			—

* $p < .01$.

Table 7 Descriptive statistics on child symptoms and correlations with Parenting Practices ($n = 133$)

CPRS-R Scale	No. items	<i>M</i>	<i>SD</i>	α	Correlations with APQ-S		
					Positive parenting	Inconsistent discipline	Poor supervision
Oppositional	10	7.37	6.43	.92	-.20*	.31**	.26*
Cognitive Prob./Inattention	12	8.61	7.03	.90	-.14	.28**	.28**
Hyperactivity	9	5.48	5.51	.89	-.12	.35**	.38**
Anxious-Shy	8	4.49	3.78	.81	-.16	.30**	.17
Perfectionism	7	4.21	3.86	.81	-.13	.15	.20*
Social Problems	5	1.47	2.41	.80	-.22*	.22*	.34**
Psychosomatic	6	2.41	2.76	.79	-.28**	.20*	.31**

* $p < .05$; ** $p < .01$.

Discussion

The results supported the validity of the APQ-S. Correlations between child symptoms and parenting practices were higher than those observed in Study II although the 12–14% shared variance in child symptoms and parenting practices is still less than the predicted 18%. The internal consistency of the scales was moderate and similar to what was reported on the APQ in a normative sample (Frick et al., 1999). Unfortunately, a dismally low return rate presented the possibility of sample biases thereby compromising the external validity of these findings. Child symptoms were slightly elevated compared to other community samples (Conners et al., 1998). The small sample size also precluded tests of group differences in APQ-9 results between mothers and fathers, daughters and sons, children of different age groups and families of different SES backgrounds. The investigation of the psychometric properties of the APQ-9 with a larger sample of families is worthy of further study.

General discussion

A short version of the APQ was shown to be reliable and valid and to have a simple, interpretable factor structure. Study I showed that three of the five scales of the APQ corresponded to empirically supported factors. Three items were chosen from each of these factors (Positive Parenting, Inconsistent Discipline, and Poor Supervision) for inclusion in the APQ-9. In Study II, the APQ-9 showed good reliability and validity in differentiating parents of children with behavior disorders and parents of children without behavior disorders. In Study III, the validity of the short scale was further supported by correlations between parenting practices and child symptoms.

A key consideration when using the APQ-9 is its lack of content relating to parents' involvement in their children's life and parents' use of punishment. Of course, empirical redundancy of two of the five scales of the APQ does not suggest that involvement and punishment domains are irrelevant to childhood disorders. Possible reasons why all five APQ scales are not supported factors are the overlap between the Involvement and Positive Parenting scales ($r = 0.56$; Study 1) and the fact that the Punishment scale includes too few items to constitute a unified factor. It is unclear whether the Involvement and Punishment scales of the APQ warrant equal consideration with its other three scales. In contrast, the well-defined factor structure of the APQ-9 is easy to interpret.

The intended application of the APQ-9 parallels that of the IOWA Connors rating scales for parents and teachers which are often used to monitor changes in DBD symptoms

(Elgar, Waschbusch, et al., 2004; Pelham et al., 1989). It would be worth investigating whether these measures are equally sensitive to interventions and expose the mutual, transactional influences that exist between parenting practices and child behavior (Elgar, McGrath, Waschbusch, Stewart, & Curtis, 2004). Other areas for further evaluation of the APQ-9 are its cross-validation with other measures of parenting, informant effects (e.g., parent vs. child reports), test-retest reliability, and the amount of time saved by using the APQ-9 as opposed to the APQ. It was estimated that parents could complete the short form in about one-fifth the time it normally takes to complete the APQ but tests under controlled conditions are needed to verify the time saved.

The development of short scales in clinical research typically occurs out of practical necessity. In our case, the search for a brief measure of parenting arose from investigating links between parental depression and child adjustment. We have yet been unable to use the APQ as often as we would have liked because it is too long to include in already crowded assessment batteries or in daily ratings of mood and behavior. In the APQ-9, we are satisfied to have found an alternative measure to use when assessment times must be kept to a minimum. There is little to be gained from shortening a 42-item measure for the purpose of a single assessment of parenting but researchers and clinicians who seek to monitor fluctuations in parenting practices over time or to study parenting practices in concert with several other child and family variables may find this new scale helpful in elucidating the influential role of parenting practices in the development and treatment of childhood disorders.

Appendix Alabama Parenting Questionnaire - Short Form (APQ-9)

Instructions: The following are a number of statements about your family. Please rate each item as to how often it typically occurs in your home. Possible answers are: Never (1), Almost Never (2), Sometimes (3), Often (4), Always (5). Please answer all items

1. You let your child know when he/she is doing a good job with something
2. You threaten to punish your child and then do not actually punish him/her
3. Your child fails to leave a note or to let you where he/she is going
4. Your child talks you out of being punished after he/she has done something wrong
5. Your child stays out in the evening after the time he/she is supposed to be home
6. You compliment your child after he/she has done something well
7. You praise your child if he/she behaves well
8. Your child is out with friends you don't know
9. You let your child out of a punishment early (like lift restrictions earlier than you originally said)

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