

Psychometric Properties of the Alabama Parenting Questionnaire

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We examined the psychometric properties of a German translation of the Child Global Report version of the Alabama Parenting Questionnaire (APQ). A total of 1219 German school-children (644 boys and 575 girls), ages 10–14 years participated in the study. The APQ was subjected to exploratory and confirmatory factor analysis. Exploratory factor analysis produced five factors that were largely consistent with the a priori scale structure. These factors included dimensions of parental involvement, positive parenting, poor monitoring/supervision, inconsistent discipline, and corporal punishment. Fit indexes from confirmatory factor analyses suggested that the five factor model represented a satisfactory solution for the data, with some minor modifications in scale content. These findings provide initial support for the factorial validity of the child report version of the APQ in German families.

KEY WORDS: Alabama Parenting Questionnaire (APQ); parenting; conduct problems; factor analysis.

Conduct problems such as aggression, non-compliance, and rule violations are among the most common reasons for referrals to mental health clinics or counselling services for children and adolescents (Kazdin, 1995). These problems are associated with impairment in various life domains including impaired educational achievement and poor social relationships, and involvement with the legal

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system (Lahey, Loeber, Quay, Frick, & Grimm, 1997). A wide range of factors have been identified as being associated with the development and persistence of these conduct problems, however, the most established risk factor is being exposed to ineffective parenting (Dadds, 1995; Dishion et al., 1991; Frick et al., 1992; see review by Prinz & Jones, 2003). These parenting practices include harsh and inconsistent discipline practices, poor monitoring and supervision of offspring, low levels of positive involvement with offspring, and excessive use of corporal punishment (Frick et al., 1992). A series of studies by Patterson and his colleagues (Capaldi & Patterson, 1994; Patterson et al., 1992) has, for example, shown that harsh and inconsistent parenting practices accounted for 30 to 52% of the variance in the development of antisocial behavior. Studies have also shown lack of, or inconsistent, parental monitoring to be a powerful predictor of juvenile delinquent behaviour (e.g., Wasserman, Miller, Pinner, & Jaramillo, 1996).

Despite the strong association between ineffective parenting practices and child behaviour, the role of parenting in the development and maintenance of child conduct problem is still unclear (Frick & Jackson, 1993). More research is needed to test different models on the association between parenting and child conduct problems. However, such effort has been hampered by the lack of methodologically-sound methods for assessing parenting practices. Observing parent-child interactions has been the most commonly used method for studying parenting patterns in young children (e.g., Forehand & McMahon, 1981; Patterson, 1982). However, behavioural observation tends to be complex and expensive, and may not be as appropriate for use among older children for a number of reasons. First, the reactivity to observation seems to increase with the age of the child, making the observation of parent-child interactions of older children less ecologically valid (see Keller, 1986). Second, it is difficult either in the laboratory or in the natural setting to set up situations that elicit the parenting behaviors most important to the development of conduct problems in older children (e.g., being left without adult supervision) and, for some behaviors (e.g., corporal punishment) it may not be ethical to establish situations in which the behaviors can be observed.

Because of the difficulties observing parenting behaviors in older children and adolescents, alternative methods for assessing parenting behaviors have been developed (Patterson, Reid, & Dishion, 1992). A common methodology has been to rely on the child's report of their parent's parenting practices (see review: Loney & Lima, 2003). However, there are a number of limitations in many of the existing measures. First, many assessments of parenting constructs rely on only one or a very few items to assess the parenting constructs of interest, thus calling into question the reliability of the measure (Shelton, Frick, & Wootten, 1996). Second, many of the questionnaires that have been developed to assess family functioning (e.g., Epstein, Baldwin, & Bishop, 1983; Moos & Moos, 1981; Roberts, Block, & Block, 1984) focus on parental stress and competence, or the emotional climate in the home, and not on parenting practices that are most relevant to conduct problems (Darling & Steinberg, 1993; Frick, 1994). The Child's Report of Parental Behavior

Inventory (CRPBI; Schaerfer, 1965) is an exception because it contains items to assess parental involvement, use of positive strategies, and inconsistent discipline. However, it lacks items assessing the parent's use of corporal punishment and it does not include items that assess the parent's ability to monitor and supervise their child, two parenting constructs that have been consistently related to conduct problems and delinquency (Frick, 1994).

To overcome the problems associated with the existing instruments for the assessment of parenting practices, the Alabama Parenting Questionnaire (APQ; Frick, 1991) was developed. The APQ consists of items that assess the five parenting constructs which have been consistently associated with conduct problems and delinquency in older children and adolescents (Shelton et al., 1996): parental involvement, positive parenting, poor monitoring/supervision, inconsistent discipline, and corporal punishment. The APQ has four parallel forms for obtaining child and parent report using both a global report format, in which the typical frequency of each parenting behavior is rated on a 5-point frequency scale (1 = Never to 5 = Always) and a telephone interview format, in which each parenting behavior is rated as to the respondent's best estimate of the number of occurrences of that behavior over the previous three days.

There have been a number of studies providing preliminary support for the reliability and validity of the APQ. Shelton et al. (1996) examined the psychometric properties of the APQ in families of clinic-referred and community volunteer children ($n = 124$) ages 6–13. They reported that the APQ scales generally showed adequate internal consistency across formats, with the exception of the three item Corporal Punishment scale across assessment formats and the Poor Monitoring/Supervision scale in the telephone interview format. Similar results were reported by Dadds, Maujean, and Fraser (2003) in a large ($n = 802$) community sample of 4- to 9-year old Australian children using the Parent Global Report form of the APQ in which moderate internal consistency of the Poor Monitoring/Supervision ($\alpha = 0.59$) and Corporal Punishment ($\alpha = 0.55$) was found. The Cronbach alpha for the other three subscales were much higher: Parental involvement = 0.75, Positive parenting = 0.77, and Inconsistent discipline = 0.73.

Besides these tests of the scales reliability, there is a growing literature on the validity of the APQ scales. First, Shelton et al. (1996) reported that scales from the APQ were generally uncorrelated with measures of a socially desirable response set for both the child report and parent report forms. Second, a number of studies have shown that scales from the APQ are sensitive to interventions designed to change parenting behaviors in an effort to prevent or treat childhood conduct problems (August, Lee, Bloomquist, Realmuto, & Hektner, 2003; Feinfeld & Baker, 2004; Lochman & Wells, 2002; Wells et al., 2000). Third, the largest body of evidence supporting the validity of the APQ is the association between problems in parenting, as documented by scales on the APQ, and conduct problems in clinic-referred children (Blader, 2004; Chi & Hinshaw, 2002; Frick, Christian, &

Wootton, 1999; Hinshaw, 2002; Shelton et al., 1996) and adolescents (Frick et al., 1999), non-referred children (Colder, Lochman, & Wells, 1997; Frick, Kimonis, Dandreaux, & Farell, 2003; Oxford, Cavell, & Hughes, 2003; Prevatt, 2003), children in substance abusing families (Stanger, Dumenci, Kamon, & Burstein, 2004), and families of hearing-impaired children (Brubaker & Szakowski, 2000).

Based on this literature, it appears that the APQ is being increasingly used in research as a measure of parenting practices that may be associated with antisocial and delinquent behavior and of parenting practices that are important targets for change in interventions for antisocial youth. One notable deficiency in this literature is the failure to determine if factor analyses support the specified five parenting dimensions. As noted previously, most of the scales from the APQ have shown adequate internal consistency. The most consistent exception is the corporal punishment items. The low internal consistency of these items is most likely due to the few items on the scale ($n = 3$) and the restricted range of responses on these items in most samples (Shelton et al., 1996). However, it is also possible that some of the problems in internal consistency are due to problems in the scale structure that might be detected through factor analyses. Further, in past research, the Parental Involvement and Positive Parenting scales are often highly correlated (e.g., 0.45–0.85; Shelton et al., 1996) which could call into question whether these scales are tapping distinct parenting constructs.

As a result, the aim of the present study was to test the factor structure of the Child Global Report version of the APQ in a large community sample of children. Few studies have compared the validity of the different forms of the APQ. In one exception, Frick et al. (1999) reported that the validity of child report increased in later childhood and adolescence, and actually showed evidence for greater validity in the assessment of parental involvement and parental use of positive parenting techniques in this age group. Also, the global report format appeared to be a better format for assessing parenting constructs like poor monitoring and supervision and corporal punishment, that involve low base rate behaviour that may not be adequately captured in the two week time window of the telephone format. Therefore, the focus of the current study was on the Child Global Report version of the APQ in this initial test of the factorial validity of the scale.

METHOD

Subjects

The sample consisted of 1219 children (644 boys and 575 girls), ages 10–14 years (mean = 12.08 years, $SD = 1.3$). The participants were recruited from urban and rural schools in Nordrhein Westfalia, Germany. These children had completed the APQ as part of a larger investigation on conduct problems. Schools were selected as being representative of the socioeconomic structure of the

German population in general, based on local census data. Almost all the sample was of German origin (94%), with the remainder coming from other ethnic backgrounds, mostly from Southern and Eastern Europe. Parental education ranged from elementary school (7%) through to university (11%) and college educated (5%), with most parents (77%) showing a high-school educational level. Most children attending these schools were from low- to middle-income families.

Procedure

The aims and methods of the present study were explained to the school principals, children, and their parents. School approval and parental written informed consent were obtained before participation in the study. Children's participation was voluntary. About 89% of the adolescents who were invited to participate in the study did so; most non-respondents did not participate because they forgot to return their consent form.

Children completed questionnaires in their classroom. Two research assistants were available to provide assistance if necessary and to ensure independent responding.

Measures

Alabama Parenting Questionnaire (APQ; Frick, 1991)

The Child Global Report version of the APQ consists of 42 items which can be used to measure parenting practices across five domains: parental involvement (e.g., "You have a friendly talk with your mom"; "You have a friendly talk with your dad"), positive parenting (e.g., "Your parents tell you that you are doing a good job"), poor monitoring/supervision (e.g., "You stay out in the evening past the time you are supposed to be home"), inconsistent discipline (e.g., "Your parents threaten to punish you and then do not do it"), and corporal punishment (e.g., "Your parents hit you with a belt, switch, or other object when you have done something wrong"). Items assessing the first two constructs are worded in the positive direction (indicating more positive parenting) and items assessing the latter three constructs are worded in the negative direction. The APQ also includes 7 additional items that measure specific discipline practices (e.g., "Your parents take away a privilege or money from you as a punishment") other than corporal punishment. The inclusion of these items was important so that corporal punishment items were not asked in isolation of other forms of discipline, which could place a negative bias toward these items. Ratings of the items are made on a 5-point scale (never, almost never, sometimes, often, always).

As noted previously, there have been a number of studies testing the reliability and validity of the APQ. However, very few have specifically focused on the Child

Global Report version used in the current study, with most past studies using either the parent report formats (e.g., Dadds et al., 2004) or combining data across assessment formats (Frick et al., 2003). However, this format has shown to be correlated with teacher reported conduct problems in youth ages 6–18 (Frick et al., 1999) and it shows only modest correlations with measures of a socially desirable response set (r 's ranging from -0.01 to 0.23 across APQ dimensions) (Shelton et al., 1996).

The Social and Health Assessment

(SAHA; Schwab-Stone, Chen, Greenberger, Silver, Lichtman, & Voyce, 1999)

The SAHA contains 20 items which included behavior related to vandalism, carrying a weapon, theft with direct personal contact, and assault. Adolescent reported on the frequency of these acts during the past year, using a 5-point scale (0 time, 1 time, 2 times, 3–4 times, or 5 or more times). Antisocial behavior score was obtained by summing the 20 items. The internal consistency of the scale has been reported to be high (Vermeiren et al., 2003). In the present study, the Cronbach alpha of the scale was .94.

Bremen Psychopathology Scale (Essau, 2000)

This scale was used to measure conduct disorder symptoms based on DSM-IV criteria (American Psychiatric Association, 1994). Participants rated each symptom on a 4-point scale, ranging from 0 (never) to 3 (very often). The Bremen Psychopathology Scale has been used in a large-scale epidemiology study on adolescents and the conduct disorder symptoms were associated with substance abuse and high level of Attention-Deficit Hyperactivity Disorder symptoms (Essau, 2000; Essau, Groen, Conradt, Turbanisch, & Petermann, 1999; Petermann, Essau, Turbanisch, Conradt, & Groen, 1999). In the current study, the Cronbach alpha for the total conduct disorder symptoms was .90.

Translation of Instrument

The English version of the Child Global report version was adapted and translated according to guidelines that are widely accepted for the successful translation of instruments in cross-cultural research (Brislin, 1970). One bilingual translator who was also a native speaker or culturally informed individual blindly translated the questionnaire from the original language (English) to the second language (German), and another bilingual translated it back to the original language (German back to English). Differences in the original and the back-translated versions were discussed and resolved by joint agreement of both translators.

RESULTS

Exploratory Factor Analysis

Because this is the first test of the APQ factor structure, exploratory factor analysis of the APQ items using maximum likelihood estimation with promax rotation was conducted. In previous studies (e.g. Frick, 1991; Shelton et al., 1996), five dimensions of parenting were identified from the APQ items: parental involvement, positive parenting, poor monitoring/supervision, inconsistent discipline, and corporal punishment. For the majority of items on the Child Global Report form, the items ask about the child's perception of parenting in the home without specific reference to a single parent (e.g., "your parents praise you for behaving well"). However, for 9 of the 10 items which are included on the Parental Involvement scale, the questions are asked for mother and father separately (e.g., "your mom helps you with your homework"). Thus, before proceeding with the factor analysis, the interparental correlation for each item between the parents was calculated for these 9 items (items 1, 4, 7, 9, 11, 14, 15, 20, 26). The correlations between parents on these items were generally moderate (r 's 0.40–0.68, all $p < .01$) with the exception of items 15 ($r = 0.27, p < .01$) and 26 ($r = -0.21, p < .01$). Such results suggested that father and mother ratings should not be linearly combined into a global scale, so all analyses were completed separately for items related to father involvement and mother involvement.

Initial exploratory factor analyses revealed a similar 5-factor solution for both father and mother data. Decisions regarding factor retention, as in Hinshaw et al. (2000), were based on (1) eigenvalues of at least one, (2) adequate internal consistency of items for each factor, and (3) the clinical interpretability of factors. Total eigenvalue and percentage of variance explained by the five factors were 45.19% and 46.04% for father and mother data, respectively. This five factor solution approximated the a priori scale structure used in past research (Shelton et al., 1996). However, four items (e.g., 17, 28, 25, 29) did not load higher than 0.3 on any of the factors for both father and mother data. Items 17, 28, and 29 came from poor monitoring/supervision scale, and item 25 came from inconsistent discipline scale. Also, 5 items for father data and 8 items for mother data loaded onto factors that were not consistent with the a priori scale structure. These items and their a priori subscale assignments are shown at the bottom of Tables I and II. After eliminating the items that did not load on any factor or that did not show the predicted factor loading, the exploratory factor analysis procedure was repeated. The results for data using father involvement and data using mother involvement are shown in Tables I and II, respectively. As was the case with the full item pool, a 5 factor solution was selected for both father and mother data all with eigenvalues greater than 1. The percentage of variance explained by the reduced item set was 46.76% for father data and 49.66% for mother data.

Table I. Factor Structure of APQ for Father Data

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Positive parenting					
5. Your parents reward or give something extra to you behaving well	.83	.00	.14	.19	-.15
2. Your parents tell you that you are doing a good job	.68	.00	.00	-.22	.00
18. Your parents hug or kiss you when you have done something well	.68	.00	-.12	.00	.12
16. Your parents praise you for behaving well	.67	.13	-.10	.00	.00
13. Your parents compliment you when you have done something well	.66	.00	.00	.13	.00
27. Your parents tell you that they like it when you help out around the house	.39	.00	-.24	-.20	.25
Father involvement					
9. Your dad asks you about your day in school	.00	.84	.00	.00	-.10
14. Your dad asks you what your plans are for the coming day	.14	.71	.19	.00	.00
15. Your dad drives you to a special activity	.00	.67	.00	.00	.00
7. Your dad play games or do other fun things with you	.00	.55	.00	-.20	.00
20. Your dad talks to you about your friends	.19	.52	.00	.00	.00
4. Your dad helps with some of your special activities (such as sports, boy/girl scouts, church youth groups)	.13	.42	.00	.00	.00
11. Your dad helps you with your homework	.00	.35	.00	-.20	.00
26. Your dad goes to a meeting at school, like a PTA meeting or parent/teacher conferences	-.14	.31	-.12	-.23	.00
Poor monitoring/supervision					
21. You go out after dark without an adult with you	.00	.21	.78	.17	.00
19. You go out without a set time to be home	.00	-.18	.67	-.15	-.17
10. You stay out in the evening past the time you are supposed to be home	.15	.00	.67	-.16	.00
30. You come home from school more than an hour past the time your parents expect you to be home	.00	.00	.59	.11	.00
32. You are at home without an adult being with you	-.10	.00	.57	.14	.12
6. You fail to leave a note or to let your parents know where you are going	.00	.00	.54	-.22	.00
Corporal punishment					
35. Your parents slap you when you have done something wrong	.00	.00	.00	.90	.00
33. Your parents spank you with their hand when you have done something wrong	.25	-.17	.00	.80	.00
38. Your parents hit you with a belt, switch, or other object when you have done something wrong	-.17	.00	.00	.74	-.11

Table I. Continued

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Inconsistent discipline					
8. You talk your parents out of punishing you after you have done something wrong	-.14	.00	.00	.00	.64
31. The punishment your parents give depends on their mood	.00	.00	.00	.28	.58
22. Your parents let you out of a punishment early (like lift restrictions earlier than they originally said)	.00	.00	.18	-.11	.49
Deleted items					
a) A priori subscale: Parental involvement					
1. You have a friendly talk with your dad	.00	.33	.00	-.39	.16
23. You help plan family activities	.41	.00	-.27	.00	.28
b) A priori subscale: Inconsistent discipline					
3. Your parents threatened to punish you and then do not do it	.20	.00	.36	.11	.28
12. Your parents give up trying to get you to obey them because it's too much trouble	-.19	.15	.26	.38	.16
c) A priori subscale: Poor monitoring					
24. Your parents get so busy that they forget where you are and what you are doing	.00	.24	.22	.50	.21
Eigenvalue	4.76	2.47	1.95	1.92	1.06
% Variance	18.31	9.50	7.51	7.37	4.07
Total % variance	46.76				

Confirmatory Factor Analysis

Next, confirmatory factor analysis procedure was used to compare different models to determine which models most fully explain the data set. Especially important was a comparison of the fit of the original 5 factor structure used in past research with the modified factor structure identified in the exploratory factor analyses described above. All analyses were performed by AMOS 5.0 (Arbuckle, 2003). Model 1 was a 5-factor model for father data, in which items were selected based on the previous exploratory analyses. Model 2 was a 5-factor model for mother data whose items were chosen based on the same criteria. Model 3 included all 42 items and assumed the factor structure reported in Shelton et al. (1996) for father data. Model 4 assumed the same structure for mother data. Model 5 assumed two higher-order factors, positive parenting (consisting of parental involvement and positive parenting) and negative/ineffective parenting (consisting of poor monitoring/supervision, inconsistent discipline, and corporal punishment) over Model 1, as suggested in previous studies (e.g., Hinshaw et al., 2000; Wells et al., 2000; Wootton, Frick, Shelton, & Silverthorn, 1997). Model 6 did the same for Model 2.

Table II. Factor Structure of APQ for Mother Data

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Poor monitoring/supervision					
21. You go out after dark without an adult with you	.74	.00	.17	.19	.00
10. You stay out in the evening past the time you are supposed to be home	.72	.16	-.14	.00	.00
19. You go out without a set time to be home	.68	.13	-.12	-.14	-.11
30. You come home from school more than an hour past the time your parents expect you to be home	.64	-.11	.10	.18	.00
32. You are at home without an adult being with you	.59	-.13	.15	.15	.00
6. You fail to leave a note or to let your parents know where you are going	.50	.00	-.21	-.16	.00
Positive parenting					
5. Your parents reward or give something extra to you behaving well	.11	.88	.21	-.11	-.10
13. Your parents compliment you when you have done something well	.00	.71	.12	.00	.00
2. Your parents tell you that you are doing a good job	.00	.67	-.22	.00	.00
16. Your parents praise you for behaving well	.00	.59	.00	.18	.00
18. Your parents hug or kiss you when you have done something well	.00	.54	.00	.27	.12
Corporal punishment					
35. Your parents slap you when you have done something wrong	.00	.00	.89	.00	.00
33. Your parents spank you with their hand when you have done something wrong	.00	.25	.81	.00	.00
38. Your parents hit you with a belt, switch, or other object when you have done something wrong	.00	-.19	.75	.00	-.13
Mother involvement					
15. Your mom drives you to a special activity	.00	-.13	.10	.89	.00
7. Your mom play games or do other fun things with you	.00	.26	-.12	.56	.00
4. Your mom helps with some of your special activities (such as sports, boy/girl scouts, church youth groups)	.19	.00	.00	.55	.00
9. Your mom asks you about your day in school	-.27	.17	.00	.33	-.21
23. You help plan family activities	-.26	.26	-.15	.29	.15
Inconsistent discipline					
31. The punishment your parents give depends on their mood	-.17	.00	.28	-.14	.65
8. You talk your parents out of punishing you after you have done something wrong	.00	-.21	-.13	.14	.61

Table II. Continued

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
22. Your parents let you out of a punishment early (like lift restrictions earlier than they originally said)	.15	.00	-.14	.13	.50
3. Your parents threaten to punish you and then do not do it	.28	.24	.00	.00	.43
Deleted Items					
a) A priori subscale: Parental involvement					
1. You have a friendly talk with your mom	.10	.12	-.51	.18	.00
11. Your mom helps you with your homework	-.13	-.43	.00	.16	.19
14. Your mom asks you what your plans are for the coming day	.00	-.45	-.10	.22	.00
20. Your mom talks to you about your friends	.12	-.54	.00	.20	.00
26. Your mom goes to a meeting at school, like a PTA meeting or parent/teacher conference	.00	.20	.00	.00	.26
b) A priori subscale: Inconsistent discipline					
12. Your parents give up trying to get you to obey them because it's too much trouble	-.36	-.20	.33	.20	.00
c) A priori subscale: Poor monitoring					
24. Your parents get so busy that they forget where you are and what you are doing	.25	.00	-.44	.33	.00
d) A priori subscale: Positive parenting					
27. Your parents tell you that they like it when you help out around the house	-.21	.23	-.24	-.28	.16
Eigenvalue	4.68	2.37	2.22	1.13	1.02
% Variance	20.35	10.31	9.67	4.91	4.43
Total % variance	49.66				

The goodness of fit indices for each model are shown in Table III. High GFI and AGFI values indicate adequate fit of the model, suggesting that the model explains the variance of the data well (Jöreskog & Sörbom, 1989). RMSEA provides a fit index unaffected by the size of the model by considering degree of freedom. The lower the RMSEA, the better the fit (Browne & Cudeck, 1993). AIC and CAIC are indices for model comparison; smaller values indicate better fit (Akaike, 1987). The model fit increased substantially after eliminating items from the original model (Table III). This was true for models including father involvement and mother involvement data. Thus, the factor structure in Models 1 and 2, and which are reflected in Tables I and II, were adopted to test as the final items. Assuming two higher-order dimensions over these items did not increase, but rather resulted in a considerable reduction of model fit.

Table III. Fit Indices for the Models

Model	GFI	AGFI	RMSEA	AIC	CAIC
Model 1 (items omitted, father data)	.79	.75	.10	4326.87	4705.84
Model 2 (items omitted, mother data)	.80	.75	.11	3622.04	3964.33
Model 3 (items retained, father data)	.70	.66	.11	8819.40	9308.39
Model 4 (items retained, mother data)	.71	.66	.11	8662.21	9151.19
Model 5 (2 higher-order factors, father data)	.64	.58	.14	7510.08	7827.92
Model 6 (2 higher-order factors, mother data)	.65	.57	.14	6063.03	6344.20
Model 7 (Multi-group model, father data)	.68	.62	.10	8161.41	N/A
Model 8 (Multi-group model, mother data)	.69	.62	.10	6602.38	N/A

Internal Consistency

Table IV shows the alpha coefficients for the scale as a whole and for each of the subscales. Overall, the APQ scales had acceptable levels of reliability (above .70), with the exception of the inconsistent discipline scale (.54 and .62 for father and mother data, respectively). Inter-factor correlations are shown in Table V. For both father and mother data, inconsistent discipline and corporal punishment had weak correlations with other factors. The two positive parenting factors (i.e. positive parenting and parental involvement) had a negative correlation with the remaining factors as expected, although the correlation between mother involvement and corporal punishment was positive. It is probable that for mothers, more involvement and time spent with children lead to more frequent discipline. However, given the low absolute value of correlation ($r = .15$; $p < 0.001$), no conclusive interpretations can be drawn.

The distribution of the scores for each of the revised scales is provided in Table VI. Corporal punishment had a distinctive bimodal distribution, suggesting that parents who spank their child are a minority but practice such discipline relatively frequently.

Table IV. Alpha Coefficients

	Father data	Mother data
Total APQ scores	.64	.65
Subscales of the APQ		
Positive parenting	.82	.79
Parental involvement	.81	.74
Poor monitoring/supervision	.83	.81
Corporal punishment	.79	.83
Inconsistent discipline	.54	.62

Table V. Inter-factor Correlation

	Poor monitoring	Corporal punishment	Positive parenting	Involvement	Inconsistent discipline
Father data					
Poor monitoring	1.00				
Corporal punishment	.00	1.00			
Positive parenting	-.25***	-.28***	1.00		
Father involvement	-.30***	-.15***	.29***	1.00	
Inconsistent discipline	.00	.00	.24***	.00	1.00
Mother data					
Poor monitoring	1.00				
Corporal punishment	.00	1.00			
Positive parenting	-.29***	-.29***	1.00		
Mother involvement	-.38***	.15***	.54***	1.00	
Inconsistent discipline	.14***	.00	.13***	.00	1.00

****p* < .001.

Gender Differences

Gender differences were examined through independent sample *t*-tests (Table VII). Significant differences in mean scores were observed for all scales except poor monitoring/supervision, suggesting that overall, father involvement and corporal punishment are more frequently endorsed by boys, whereas positive parenting, mother involvement, and inconsistent discipline are more characteristic of parenting for girls. The congruence of factor structure across boys and girls was tested by means of multiple group analysis using structural equation modeling

Table VI. Statistical Characteristics of APQ

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Upper quartile	90th percentile
Poor monitoring	14.35	5.4	.78	-.08	18	22
Corporal punishment	4.36	2.5	2.97	9.47	5	7
Father data						
Positive parenting	21.53	5.1	-.28	-.65	26	28
Father involvement	21.91	6.7	-.07	-.33	26	30
Inconsistent discipline	6.98	2.9	.39	-.52	9	11
Mother data						
Positive parenting	17.54	4.4	-.20	-.66	21	23
Mother involvement	16.98	4.4	-.32	-.54	20	23
Inconsistent discipline	9.38	9.4	.43	-.33	12	14

Table VII. Gender Differences in APQ

	Boys		Girls		<i>t</i> -value	<i>p</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Poor monitoring	14.27	4.7	14.44	5.9	-.54	.59 (n.s.)
Corporal punishment	4.52	2.7	4.18	2.2	2.45	.01*
Father data						
Positive parenting	20.37	5.3	22.85	4.5	-8.85	.00**
Father involvement	22.70	5.6	20.96	7.8	4.36	.00**
Inconsistent discipline	6.54	2.9	7.50	2.9	-5.71	.00**
Mother data						
Positive parenting	16.54	4.6	18.68	3.8	-8.83	.00**
Mother involvement	16.44	3.9	17.59	4.7	-4.55	.00**
Inconsistent discipline	8.83	3.7	10.03	3.6	-5.73	.00**

p* < .05. *p* < .001.

(Table III). Model 7 assumed the factor structure in Model 1 was the same for both boys and girls, and Model 8 did the same for Model 2. There was a considerable decrease in model fit, indicating that the factor structure of APQ may be different depending on gender. However, RMSEA values stayed the same.

Construct Validity

The next step of analyses examined the association between parenting practices and conduct problems and antisocial behavior (Table VIII). As expected, significant negative correlations were found between conduct problem total scores and parental involvement, and positive parenting. Significant positive correlations were found between conduct problems and poor monitoring and corporal punishment. These significant associations were confirmed by the findings using the SAHA which measured aggressive and antisocial behavior. The only subscale which did not correlate significantly with conduct problems and SAHA was that of inconsistent discipline.

DISCUSSION

The main aim of the present study was to examine the factor structure of the APQ in a large community sample of children, aged 10–14 years. The APQ was designed to measure five parenting constructs shown to be associated with risk of conduct problems in children: parental involvement, positive parenting, poor monitoring/supervision, inconsistent discipline, and corporal punishment (Shelton et al., 1996). As such the development of the APQ was the first attempt to

Table VIII. Correlations Between the APQ and Conduct Problems

	Mother involvement	Father involvement	Positive parenting	Poor monitoring	Inconsistent discipline	Corporal punishment
DSM-IV symptoms for conduct disorder (total)	-.38***	-.25***	-.37***	.34***	-.02	.50***
Aggression to people and animal	-.38***	-.20***	-.38***	.30***	-.30***	.52***
Destruction of property	-.33***	-.28***	-.27***	.23***	-.07*	.46***
Deceitfulness or theft	-.35***	-.26***	-.38***	.45***	.07*	.33***
Serious violations of rules	-.40***	-.30***	-.41***	.44***	-.09*	.20***
Aggressive and antisocial behavior (SAHA)	-.36***	-.22***	-.35***	.36***	.02	.53***

* $p < .05$. *** $p < .001$.

address several limitations of previous measures of parenting styles. First, it was specifically designed to tap the parenting practices which are most consistently associated with conduct problems. Second, it is relatively short and can be completed within a few minutes. Third, the Child Global Report format of the APQ is a self-report questionnaire, and thus can be used to directly obtain adolescents' perception of their parent's parenting styles. Further, because of its ease of administration, the APQ can be administered in group or school setting, and on an individual basis in a clinical setting.

Overall, exploratory and confirmatory analyses supported a 5-factor solution for the APQ similar to that reported by Shelton et al. (1996): parental involvement, positive parenting, poor monitoring/supervision, inconsistent discipline, and corporal punishment. However, in order to increase the exploratory value of the subscales, four items which did not load higher than 0.3 were deleted. Three of these items belonged to the subscale "poor monitoring/ supervision" ("Your parents do not know the friends you are with"; "You stay out later than you are supposed to and your parents don't know it"; "Your parents leave the house and don't tell you where they are going") and one item belonged to subscale "inconsistent discipline" ("Your parents do not punish you when you have done something wrong"). In addition, 5 items for father data and 8 items for mother data loaded onto subscales other than the original version; in order to retain factor interpretability, these items were omitted. After this elimination, all items loaded at moderate to high levels onto the factors they were intended to measure. Results of the confirmatory factor analyses indicated better fit was obtained after

eliminating these items from the original model. This suggests that mother and father data may have a different factor structure, providing one rationale for keeping mother and father data separate. Such analytical procedure is not only statistically valid, but increases the potential of APQ for clinical use; mother and father rearing attitudes may be very different and consequently have unique effects on the therapeutic process. However, the deletion of items should be viewed with caution in light that content validity and scoring facility may be compromised. Future studies clearly need to replicate our findings.

Our finding on gender differences on APQ was interesting, as it suggested that girls, compared to boys, had significantly higher scores on positive parenting (mother and father) and mother involvement. There was no clear explanation for these findings, however, this finding could either represent a perception differences with more girls than boys perceiving their mothers as spending more time with them, or it could reflect a behavioural difference with mothers actually spent more time with their daughter compared to their sons. Because this finding was based exclusively on adolescent's self-report, it is not possible to determine which of these two speculations could be a more plausible explanation.

The construct validity of the APQ was supported by its association with a measure of conduct problems, as well as with aggressive and antisocial behaviour. In line with past research, conduct problems and aggressive and antisocial behaviour correlated significantly negative with parental involvement and with positive parenting (e.g., Loeber & Stouthamer-Loeber, 1986; Wasserman et al., 1996). The dimension of parenting that had the strongest correlation with conduct problem and aggressive and antisocial behaviour was that of corporal punishment. Indeed several studies have similarly showed corporal punishment to be linked to disruptive child behaviour (e.g., Frick et al., 1992).

There are several methodological limitations of the study which warrant comments. First, our results were limited to children's self-report, and should not be generalized to the other versions of the APQ. It would be valuable to compare the results of the children report with report of parents using the parent version of the APQ and to compare the factor structure of the global report formats, that assess typical levels of parenting behavior, with the telephone interview formats, that assess rates of parenting behavior over several three day time intervals. Second, the sample is limited to children of German origin; as such they may not be generalized to children from other ethnic groups, especially given differences in parenting practices across ethnic groups. That is, a common parenting goal in Germany, like in many other western industrialized societies, is the promotion of individualism such as self-development, independence, freedom, and autonomy, which to some extent tend to promote some degree of aggressiveness (Trommsdorff & Essau, 1999). By contrast, in Asian cultures, the main parenting goal is to maintain group harmony and cooperation.

These limitations should be taken into consideration when interpreting our results. However, our results provide initial support for the five scale structure of the APQ that has been used in past research to assess familial risk factors to childhood conduct problems (e.g., Chi & Hinshaw, 2002; Colder et al., 1997; Frick et al., 1999; Prevatt, 2003) or as an outcome measure for parenting interventions designed to reduce the risk for conduct problems (August et al., 2003; Feinfeld & Baker, 2004; Lochman & Wells, 2002; Wells et al., 2000). Because these dimensions appear somewhat separable, the APQ could provide a quick and useful method of assessing parenting in studies comparing different aspects of parenting to determine which aspects may be most important for predicting the development of conduct problems (Frick, 1994) and whether the importance of the dimensions of parenting differ across ethnic groups (McLeod, Kruttschnitt, & Domfeld, 1994; Molnar, Buka, Brennan, Holton, & Earls, 2003) or for children with different temperaments (Colder et al., 1997). Similarly, a multi-faceted assessment of parenting could be critical to determining whether parenting interventions are equally effective across different domains of parenting behavior or whether the focus on certain parenting skills need to be enhanced in the intervention (Feinfeld & Baker, 2004).

In summary, research on the effects of parenting on childhood conduct problems requires a measure that assesses the dimensions of parenting that are most strongly and consistently related to conduct problems that assesses them in a cost-efficient manner. The APQ appears to be a promising measure in this respect. Further, a weakness of the APQ, and most measures of parenting practices (Kamphaus & Frick, 2002), is the lack of normative data on which to base cut-scores. Again, the time-efficient nature allows for use of the APQ in large samples on which normative data can be obtained. The current findings provide initial data on the distributions of the different parenting dimensions in a large community sample. As noted previously, the homogenous nature of the sample, both in terms of age and ethnicity, make it unclear how well these norms will generalize to other samples. However, these data illustrate how the APQ can be used in large samples to generate normative data that, when tested in more diverse samples, could greatly increase the usefulness of the APQ for a number of important purposes that require a norm-referenced scores.

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