



The Structure of Challenging Parenting Behavior and Associations With Anxiety in Dutch and Australian Children

Mirjana Majdandžić, Rebecca S. Lazarus, Frans J. Oort, Cathy van der Sluis, Helen F. Dodd, Talia M. Morris, Wieke de Vente, Yulisha Byrow, Jennifer L. Hudson & Susan M. Bögels

To cite this article: Mirjana Majdandžić, Rebecca S. Lazarus, Frans J. Oort, Cathy van der Sluis, Helen F. Dodd, Talia M. Morris, Wieke de Vente, Yulisha Byrow, Jennifer L. Hudson & Susan M. Bögels (2018) The Structure of Challenging Parenting Behavior and Associations With Anxiety in Dutch and Australian Children, *Journal of Clinical Child & Adolescent Psychology*, 47:2, 282-295, DOI: [10.1080/15374416.2017.1381915](https://doi.org/10.1080/15374416.2017.1381915)

To link to this article: <https://doi.org/10.1080/15374416.2017.1381915>



Published with license by Taylor & Francis©
Mirjana Majdandžić, Rebecca S. Lazarus,
Frans J. Oort, Cathy van der Sluis, Helen
F. Dodd, Talia M. Morris, Wieke de Vente,
Yulisha Byrow, Jennifer L. Hudson, Susan M.
Bögels.



Published online: 20 Oct 2017.



Submit your article to this journal [↗](#)



Article views: 1922



View related articles [↗](#)



View Crossmark data [↗](#)



The Structure of Challenging Parenting Behavior and Associations With Anxiety in Dutch and Australian Children

Mirjana Majdandžić

*Research Institute of Child Development and Education and Research Priority Area Yield,
University of Amsterdam*

Rebecca S. Lazarus

Centre for Emotional Health, Department of Psychology, Macquarie University

Frans J. Oort

*Research Institute of Child Development and Education and Research Priority Area Yield,
University of Amsterdam*

Cathy van der Sluis

UvA Minds, Academic Treatment Center for Parents and Children, University of Amsterdam

Helen F. Dodd

School of Psychology and Clinical Language Sciences, University of Reading

Talia M. Morris

Centre for Emotional Health, Department of Psychology, Macquarie University

Wieke de Vente

*Research Institute of Child Development and Education and Research Priority Area Yield,
University of Amsterdam*

Yulisha Byrow and Jennifer L. Hudson 

Centre for Emotional Health, Department of Psychology, Macquarie University

Susan M. Bögels

*Research Institute of Child Development and Education and Research Priority Area Yield,
University of Amsterdam*

© Mirjana Majdandžić, Rebecca S. Lazarus, Frans J. Oort, Cathy van der Sluis, Helen F. Dodd, Talia M. Morris, Wieke de Vente, Yulisha Byrow, Jennifer L. Hudson, Susan M. Bögels.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

Correspondence should be addressed to Mirjana Majdandžić, Research Institute of Child Development and Education, University of Amsterdam, Nieuwe Achtergracht 127, 1018 WS, Amsterdam, The Netherlands. E-mail: M.Majdandzic@uva.nl

Authors Mirjana Majdandžić and Rebecca S. Lazarus conducted equal work and share first author status.

Challenging parenting behavior (CPB), a novel construct involving active physical and verbal behaviors that encourage children to push their limits, has been identified as a potential buffer against child anxiety. This study aimed to (a) evaluate the measurement invariance of the Challenging Parenting Behavior Questionnaire (CPBQ4-6) across Dutch and Australian mothers and fathers of preschoolers, (b) examine differences in levels of CPB across mothers and fathers and across countries, and (c) examine whether parents' CPB predicts less child anxiety symptoms and disorders. Participants were 312 families—146 Dutch and 166 Australian—with their 3- to 4-year-old child (55.8% girls). Fathers' and mothers' CPB was measured using the CPBQ4-6, and child anxiety symptoms and presence of anxiety disorders were assessed using maternal reports. Multigroup confirmatory factor analyses revealed equivalence of factor structure and factor loadings (all significant) of the CPBQ4-6 across mothers and fathers and across countries. Evidence of partial scalar invariance indicated that the groups differed on some subscales of the CPBQ4-6. Australian mothers scored lower on the CPB factor than Australian fathers and Dutch parents. Structural equation models showed that CPB predicted fewer child anxiety symptoms and anxiety disorders for all groups. The study confirms that the CPBQ4-6 is appropriate for use with Dutch and Australian parents of preschool-age children and identifies CPB as a multifaceted and coherent construct. The negative relations between CPB and child anxiety suggest that CPB has a protective role in childhood anxiety and is important to examine in future research and interventions.

Childhood anxiety disorders are chronic, are debilitating, and often persist into adulthood (Merikangas et al., 2010). The chronicity of these disorders, in addition to their accumulating personal, social, and economic impact (Bodden, Dirksen, & Bögels, 2008; Zubrick, Silburn, Burton, & Blair, 1999), emphasizes the need to continue to develop our understanding of the respective factors involved in their etiology and maintenance (Pahl, Barrett, & Gullo, 2012). Existing research has established a relationship between parenting behaviors and the development and maintenance of childhood anxiety disorders (Creswell, Murray, Stacey, & Cooper, 2011), with findings often highlighting the importance of parental overcontrol and rejection (McLeod, Wood, & Weisz, 2007; Murray, Creswell, & Cooper, 2009; Rapee, Schniering, & Hudson, 2009). The majority of this research has focused primarily on the parenting behavior of mothers, making it difficult to examine the differential effect of parental sex (Bögels & Phares, 2008; Creswell et al., 2011). Given that paternal overinvolvement and overcontrol have also been associated with child anxiety (e.g., Bögels, Bamelis, & Van Der Bruggen, 2008; Greco & Morris, 2002; Hudson & Rapee, 2002; Möller, Nikolić, Majdandžić, & Bögels, 2016), further research is required to examine the role of fathers, as both maternal and paternal parenting behaviors may contribute to the intergenerational transmission of anxiety (Möller et al., 2016).

Although it is important to examine maladaptive parenting behaviors that may act as risk factors in the development of childhood anxiety disorders, it is just as pertinent to examine protective parenting behaviors. One such factor that may act as a buffer against early anxiety is *challenging parenting behavior* (CPB; Majdandžić, De Vente, & Bögels, 2016). Through this behavior, parents, particularly fathers, are suggested to play an important role by encouraging their children to take risks, practice social assertion, and explore unfamiliar situations with confidence (Bögels & Perotti, 2011; Bögels & Phares, 2008).

CPB can include physical play (particularly rough-and-tumble play), encouraging children to push their limits through exposure to safe risks, giving the child a fright, letting the child lose a game, encouraging the child to be assertive, and modeling of challenging behavior by the parent (Majdandžić et al., 2016). Challenging the child's behavior may have a particular influence on development, preparing the child to interact with the world outside the family (Bögels & Perotti, 2011; Bögels & Phares, 2008). This exposure to safe risk environments enables children to be braver in unfamiliar situations as well as stand up for themselves, which in turn fosters the child's confidence (Paquette, 2004). If exposure to small risks such as rough-and-tumble play benefits the child, fathers who do not encourage these interactions may increase the child's risk for developing anxiety (Bögels & Phares, 2008).

Although there is theoretical support for CPB (Bögels & Perotti, 2011; Bögels & Phares, 2008), a growing body of research has begun to empirically examine this novel parenting construct (see Lazarus et al., 2016; Majdandžić, Möller, De Vente, Bögels, & Van Den Boom, 2014; Möller, Majdandžić, & Bögels, 2014). In the earliest study to empirically examine this construct, Majdandžić et al. (2014) measured maternal and paternal CPB via observation and children's (two siblings aged 2 and 4 years, respectively) social anxiety was observed at two time points, 6 months apart. For the older preschool-age children, Majdandžić et al. (2014) found more paternal CPB to be associated with decreases in social anxiety 6 months later, whereas more maternal CPB was associated with an increase in child social anxiety. When examining this construct in 1-year-old infants, Möller et al. (2014) utilized parent-report measures of CPB and infant temperamental fear and found that paternal, but not maternal, CPB was associated with less infant anxiety. In an attempt to replicate and extend these findings, Lazarus et al. (2016) examined

the relationship between parent-reported CPB and maternal-reported child anxiety at both the symptom *and* disorder level in 3- to 4-year-olds. Mothers' and fathers' CPB were *both* associated with lower report of child anxiety at the symptom level. Although at the disorder level, only mothers' CPB was found to predict decreased risk for clinical child anxiety diagnosis.

There are several plausible explanations for the disparate findings among studies examining CPB and its relation with child anxiety. One explanation is that these studies utilized differing measures and methodology for the assessment of childhood anxiety; social anxiety measured via observation (Majdandžić et al., 2014), mother and father report of infant temperament (Möller et al., 2014), and maternal-only report of child anxiety symptoms through both questionnaire and structured diagnostic interviews (Lazarus et al., 2016). Second, these studies utilized different measures to assess the CPB construct. That is, Lazarus et al. (2016) and Möller et al. (2014) utilized differing age-adapted versions of the Challenging Parenting Behavior Questionnaire (CPBQ4-6; Majdandžić, De Vente, & Bögels, 2010), a version designed for 4- to 6-year-olds and one for 1-year-olds respectively, whereas Majdandžić et al. (2014) assessed CPB via observation through a set of structured tasks. Although the CPB scale used by Möller et al. (2014) has recently been psychometrically validated and displayed modest and significant convergence with observational measures of CPB (see Majdandžić et al., 2016, for a full discussion), Lazarus et al. (2016) utilized the English translation of a newly developed Dutch questionnaire (CPBQ4-6; Majdandžić et al., 2010), yet to be psychometrically validated. Last, these studies assessed children from different countries (the Netherlands and Australia) and at diverse stages of development (i.e., infancy: Möller et al., 2014; toddlerhood age: Majdandžić et al., 2014; and preschool age: Lazarus et al., 2016; Majdandžić et al., 2014).

Findings across studies also vary with regards to the differences in levels of CPB between fathers and mothers. Möller et al. (2014) found no differences between fathers and mother in levels of self-reported CPB toward their 1-year-old infant. In the observational study of Majdandžić et al. (2014), fathers were significantly more challenging toward their 2-year-old child than mothers but equally challenging toward their 4-year-old. Lazarus et al. (2016) reported higher levels of fathers' self-rated CPB compared to mothers' CPB toward their preschooler. The longitudinal study of Majdandžić et al. (2016) on CPB in early childhood revealed no differences between fathers and mothers in CPB in infancy (at 4 months and 1 year) using self-rated and observational measures of CPB, whereas in toddlerhood (at 2½ years), fathers rated themselves higher on CPB than mothers. At the level of subcomponents of CPB, this study showed evidence of fathers scoring higher than mothers specifically on physical play, starting in late infancy. Thus, these studies suggest that fathers and mothers are equally challenging to their child in infancy but that fathers may

show higher levels of CPB than mothers at preschool age and perhaps beyond.

A significant limitation of the work to date comparing mothers and fathers CPB is that there is as yet only one study assessing the equivalence of this measure for mothers and fathers (Majdandžić et al., 2016). This study found equivalence of factor structure and factor loadings for fathers and mothers at 1 year and 2½ years. It is unclear whether the factor structure of the measure is consistent across mothers and fathers beyond toddlerhood. Further, it is possible that the contradictory findings just explained could be indicative of cultural differences between Dutch and Australian families. We do not know whether the measure is equivalent across countries. For example, is CPB in the Netherlands and Australian conceptualized the same way? Is the underlying construct the same? Do the scores reflect the same degree of CPB for Dutch and Australian mothers and fathers? Thus, there is a need to assess the equivalence of this measure when used in different populations. Further, to be able to draw comparisons, it will be important to compare the CPB of parents of children at a similar stage of development while ensuring comparable measures are utilized for the assessment of childhood anxiety. These steps are necessary prior to forming strong conclusions about the relationship of CPB toward childhood anxiety disorders and making inferences about differential parenting effects.

The aims of the current study were therefore the following: first, to assess measurement invariance of the CPBQ4-6 (Majdandžić et al., 2010) (a) across fathers and mothers and (b) across Dutch versus Australian parents; second, to assess whether levels of CPB differ (a) across fathers and mothers and (b) across Dutch and Australian parents; and third, to examine the predictive relations between parents' CPB and child anxiety symptoms and disorders, and whether these were equivalent across mothers and fathers, and across countries. We hypothesized (a) to find measurement equivalence across fathers and mothers, and across countries, (b) that fathers would rate themselves higher than mothers on CPB in both countries and (c) that parents' CPB would predict fewer child anxiety symptoms and disorders.

METHODS

Participants

Participants were 312 families, drawn from two countries and consisting of two Dutch samples ($N = 146$) and two Australian samples ($N = 166$).

Dutch sample

Participants from the first Dutch sample were 103 couples who participated with their first child in the ongoing longitudinal

study The Social Development of Children, on the antecedents of anxiety in young children (Aktar, Majdandžić, De Vente, & Bögels, 2013; De Vente, Majdandžić, Colonesi, & Bögels, 2011; Majdandžić et al., 2016). Of the 151 families who started participation in the study at the prenatal measurement, 118 participated at the measurement occasion when the child was 4½ years. For the current study, data on CPB of one or both parents (101 mothers, 100 fathers) were available for 103 children (59 girls, 44 boys; M age = 4.50 years, SD = 0.05, range = 4.40–4.68). Recruitment took place when couples were expecting their first child. Families were recruited through leaflets provided by midwives in Amsterdam and in cities within a range of 50 km around it, at pregnancy courses, baby shops, and through advertisements in magazines and on websites on parenthood. The vast majority of parents were of Dutch origin (97% fathers, 94% mothers). Educational level was fairly high: for mothers, M = 7.02, SD = 1.16, range = 1–8 (on a scale from 1 [primary education] to 8 [university]); for fathers, M = 6.54, SD = 1.61, range = 2–8. Mothers' professional level was M = 8.69, SD = 2.10, range = 2–11, and fathers level was M = 8.12, SD = 2.71, range = 3–11, on a scale ranging from 1 (manual labor for which no education is required) to 11 (labor for which a university degree is required). Mothers' mean age at the time of this study was 35.83 years (SD = 4.28) and fathers' mean age was 38.84 years (SD = 5.53).

Participants of the second Dutch sample were drawn from a sample 172 families that participated in a study on anxiety in young children ages 4–7 years. These children had not been treated for anxiety in the past, nor did they have any formal diagnosis. Children of 3–4 years (n = 43; 23 girls, 20 boys) were selected for this study in view of comparability in age with the Australian sample. One child was 3 years old, and 42 were 4 years (data to calculate exact age were not available). Data on CPB were available for 43 mothers and 42 fathers. Families were recruited by students through convenience sampling in the community, including relatives, local contacts, and schools. The majority of parents were of Dutch origin (mothers = 91%, fathers = 95%). Educational level of the parents was fairly high: mothers, M = 6.37, SD = 1.51, range = 2–8; fathers, M = 6.21, SD = 1.60, range = 2–8 (on a scale from 1 [primary education] to 8 [university]). Mothers' mean age at the time of the study was 34.65 years (SD = 4.86), and fathers' mean age was 37.45 years (SD = 6.17). Thus, socioeconomic status of the parents of the Dutch samples was relatively high.

Australian sample

Australian participants were obtained from two samples. For the first sample, data were obtained as part of the baseline assessments of a randomized control trial of an intervention for behaviorally inhibited children. Participants included 164 preschool children (92 girls, 72 boys) ranging in age from 3.35 to 4.81 years and their mothers and fathers (Lazarus et al.,

2016). For the second sample, data were obtained as part of a separate study that followed the same recruitment procedures used in the first Australian sample. Participants included 13 preschool children (nine girls, four boys) ranging in age from 3.28 to 4.64 years. The complete Australian sample consisted of 166 children (92 girls, 74 boys; 85 behaviorally inhibited, and 81 behaviorally uninhibited) for which data on CPB of one or both parents (161 mothers, 152 fathers) were available (M children age = 3.98 years, SD = 0.32, range = 3.28–4.67). Children were recruited via advertisements in a local parenting magazine and flyers distributed to local preschools. Two advertisements were used—the first requested “shy” children and the second “confident” children. Children were selected for participation based on mothers' ratings on the Approach subscale of the Short Temperament Scale for Children via telephone interviews (Sanson, Smart, Prior, Oberklaid, & Pedlow, 1994). The complete procedure is described in Lazarus et al. (2016).

Most mothers described the family ethnicity as being of Oceanic ethnicity (74.3%), 14.2% as Asian, 6.8% European, 2.7% American, and 2.0% African. The majority of families (73.8%) were from middle- to high-income families (annual income of AUD \$80,000 or greater) and 93.9% of children were from two-parent homes. Parents' education levels were relatively high, with 76.1% of mothers and 63.1% of fathers having an undergraduate or postgraduate degree. Mothers' mean age at the time of the study was 36.70 years (SD = 4.74), and fathers' mean age at the time of the study was 39.17 years (SD = 5.61).

Measures

Challenging parenting behavior

Parents' CPB was assessed using the CPBQ4–6 (Majdandžić et al., 2010). This questionnaire assesses the extent to which the parent encourages the child socioemotionally and physically to exhibit risky behavior, or behavior that causes the child to go outside of his or her comfort zone. The original scale included 43 items, and seven subscales of CPB: teasing, rough-and-tumble play, encouragement of risk taking, social daring, encouragement of assertiveness, competition, and parental modeling of CPB. In addition to the subscales, a total score can be constructed for an overall measure of CPB. Parents were asked to rate statements about interactions with their child (e.g., “If my child thinks that he/she can't do something, I encourage him/her to try again”) on a 5-point Likert scale, from 1 (not applicable) to 5 (completely applicable).

The original Dutch version was translated into English by Mirjana Majdandžić. This translation was checked by the University of Amsterdam's translation office. Next, the translation was discussed with the Australian research team and was adjusted slightly. A back translation was carried out by Helen F. Dodd, Jennifer L. Hudson, and a

bilingual Dutch-English volunteer, and it was found to be satisfactorily similar to the original Dutch version.

Prior to the main analyses, internal consistency of the measures was examined separately for fathers and mothers of each country. Items with negative or low ($< .10$) item-total correlation at the total scale or subscale level were removed. In each group, the same four items showed problematic item-total correlations, and these were removed (one of these items showed greater than $.10$ item-total correlation in Dutch fathers but less than $.03$ in Australian fathers and Dutch and Australian mothers). Following Majdandžić et al. (2016), social daring and encouragement of assertiveness were combined into one social daring scale. The resulting CPBQ4–6 contains 39 items and consists of six subscales: Teasing (six items), Rough-and-Tumble Play (six items), Encouragement of Risk Taking (six items), Social Daring (nine items), Competition (five items) and Modeling (seven items). The items are presented in Table A1 in the appendix.

Reliability of the CPB total scale and subscales for Dutch and Australian parents is presented in Table 1. Internal consistency of the CPB total score was high for both fathers' and mothers' self-ratings in both countries. Internal consistency of the subscales was acceptable to good. Evidence for validity of the CPBQ comes from a study using younger age versions, showing convergence with observations of CPB (Majdandžić et al., 2016).

Child anxiety symptoms

Child anxiety symptoms were assessed using mothers' report on the Preschool Anxiety Scale (PAS; Spence, Rapee, McDonald, & Ingram, 2001) in the Australian sample and on the Preschool Anxiety Scale–Revised (PAS-R; Edwards, Rapee, Kennedy, & Spence, 2010) in the Dutch samples. The PAS contains 28 items, and the PAS-R 30, reflecting areas broadly consistent with *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American

Psychiatric Association, 1994) diagnostic categories: social anxiety, separation anxiety, generalized anxiety, obsessive-compulsive symptoms, and specific fears. An example item is “Has difficulty stopping him/herself from worrying.” The PAS has been found to have good construct validity, satisfactory internal consistency, and good test–retest reliability (Spence et al., 2001). The PAS-R has been found to have satisfactory internal consistency for all scales (Cronbach's $\alpha > .70$) across English (Edwards et al., 2010) and Dutch translations (Broeren & Muris, 2008, 2009), as well as good construct validity and stability over time (see Edwards et al., 2010). Internal consistency for the PAS/PAS-R total score was excellent; in the Australian sample, $\alpha = .94$; in the first Dutch sample, $.88$; and in the second Dutch sample, $.93$.

To enable comparison between the PAS and PAS-R, *T* scores were calculated for total scores. *T* scores for the PAS were computed using the norms provided by Spence (n.d.) based on a sample of Australian preschoolers ($N = 1,368$). There is currently no normative data for the PAS-R. Consequently, separate *T*-score distributions were developed by creating norms from the largest published sample of the PAS-R ($N = 764$, $M = 38.4$, $SD = 19.0$ for mother report; see Edwards et al., 2010).

Child anxiety disorders

In each sample, the Anxiety Disorders Interview Schedule for *DSM-IV* Parent Version (ADIS-P-IV; Silverman & Albano, 1996) was used with mothers to assess child anxiety disorders (in the first Dutch sample, fathers were also interviewed but not used in the current study; in the second Dutch sample, 64% of interviews was conducted with mother, 31% with both the father and the mother, and 4% with the father). Interviews were conducted and diagnoses assigned by trained postgraduate students in psychology or clinical pedagogics. The ADIS-P-IV has excellent interrater agreement of $\kappa = 1.00$ for an overall anxiety diagnosis and between $\kappa = .80$ and $\kappa = .93$ for specific anxiety diagnoses (Lyneham, Abbott, & Rapee, 2007). Reliability for the presence of a clinical anxiety disorder was excellent in the Australian sample ($\kappa = .95$), and in the Dutch sample ($\kappa = 1.00$). Diagnoses were only considered “clinical” if the severity rating was 4 or greater, consistent with ADIS guidelines (Silverman & Albano, 1996).

Procedure

Dutch sample

For the first Dutch sample, ethical approval was obtained from the Department of Psychology of the University of Amsterdam, and all participants provided written informed consent. Mothers and fathers participated in laboratory visits separately with their child, where several tasks were conducted (not used in the current study). Before the lab visit, parents received a set of questionnaires, including the

TABLE 1
Reliability (Cronbach's α) of the Scales of Challenging Parenting Behavior Questionnaire

Scale	Items	Australian Sample		Dutch Sample	
		Mother	Father	Mother	Father
CPB Total Score	39	.90	.91	.92	.91
Teasing	6	.63	.76	.76	.80
Rough-and-Tumble Play	6	.73	.71	.84	.79
Encouragement of Risk Taking	6	.65	.68	.72	.76
Social Daring	9	.69	.68	.69	.69
Competition	5	.69	.74	.77	.70
Modeling	7	.73	.73	.78	.74

Note: Challenging Parenting Behavior (CPB) total score = higher order scale CPB.

CPBQ4–6 and the PAS-R, to be filled out at home individually and returned at the lab visit or by mail. ADIS interviews about the child were conducted by telephone separately with mothers and fathers (fathers' interviews were not used in the current study).

For the second Dutch sample, the ethical board of the Department of Child Development and Education of the University of Amsterdam approved the study, and the participants provided written informed consent. Families were visited at their homes where ADIS interviews about themselves and their child were conducted. If one of the parents was not at home during the visit, they were revisited at a later time, or the interview was conducted by phone. Either parents were sent questionnaires before the home visit, so they could be collected at that time, or the questionnaires were handed to the parents during the home visit and then were returned by post. The questionnaires package included, but was not limited to, the CPBQ4–6 and PAS-R reported in the current study.

Australian sample

Macquarie University Ethics Committee approved all procedures prior to study start. Mothers provided consent for the family and were sent links to online questionnaires. For mothers, questionnaires included demographic information, the CPBQ4–6, and the PAS. For fathers, questionnaires included demographic information and the CPBQ4–6. ADIS-P-IV interviews were conducted with mothers during a 2-hr research session at Macquarie University (Sample a) and by telephone (Sample b). Participants also completed additional questionnaires as well as observational tasks (not presented here). It is noted that fathers were not asked to complete measures on childhood anxiety (PAS and ADIS-P-IV). As fathers were not required to attend the research session, questionnaire packages were restricted to reduce time constraints for fathers and to facilitate survey completion.

Data Analysis Plan

The first aim of the study—to investigate measurement invariance of the CPBQ4–6 in Dutch and Australian parents—was explored using a series of multigroup confirmatory factor analyses (CFAs) using Mplus (Muthén & Muthén, 1998–2015). The CFAs were conducted at the subscale level, estimating the loadings of the six subscales on the latent CPB factor (see Majdandžić et al., 2016). To account for dependency between fathers and mothers, a two-factor model was specified, with one latent factor for mothers' CPB and one for fathers' CPB, each indicated by the six CPB subscales. The factors representing fathers' CPB and mothers' CPB were correlated, as were the residual factors of the corresponding subscales.

Measurement invariance was tested in three steps (e.g., see Milfont & Fischer, 2015). First, configural invariance

analyses were done to examine the overall model fit and significance of factor loadings for a multigroup model with no constraints across fathers and mothers, and across countries. Configural invariance establishes whether the basic model structure is invariant across groups, indicating that the reports of mothers and fathers from different countries conceptualize CPB in the same way. Second, metric equivalence was tested by constraining factor loadings of the scales to be equal across fathers and mothers, and across countries, and by comparing the fit of models with and without the constraints. Metric invariance indicates that the strength of the relations between the subscales and the underlying CPB construct is the same across groups. Third, scalar invariance was tested by also constraining intercepts and comparing the fit of models with and without the constraints. Scalar invariance indicates that differences between individuals on observed scores (i.e., on the subscales) can be fully explained by differences between them on the underlying common factor scores (e.g., on CPB). Thus, if scalar invariance is met, Australian and Dutch fathers and mothers who obtain the same score on, for example, the subscale rough-and-tumble play would have the same score on the CPB common factor score.

In case constraints resulted in significantly decreased model fit, we also tested partial measurement invariance models by removing single constraints one by one in order to examine for which factor loadings or intercepts the invariance constraints did not hold. Last, we investigated the second aim of our study, namely, to test the significance of differences in levels of CPB between fathers and mothers, and between countries, by also constraining the common factor means to be equal and comparing model fit.

Models were fitted using maximum likelihood estimation. Model fit of the initial configural model was evaluated using the chi-square measure of absolute fit, the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). Cutoffs of $CFI \geq .95$ and $RMSEA \leq .05$ suggest good fit, and cutoffs of $CFI \geq .90$ and $RMSEA \leq .08$ suggest adequate fit (Cheung & Rensvold, 2002; Hu & Bentler, 1998). Measurement invariance was evaluated through chi-square difference tests and Expected Cross Validation Index (ECVI) differences (Browne & Cudeck, 1992). A significant chi-square difference and a significant ECVI difference indicate a notable decrease in approximate fit. In addition, current research suggests that a negative change in the CFI of $-.002$ or lower and a positive change in the RMSEA of $.007$ or higher are indicative of notable decrement in model fit (Sass, Schmitt, & Marsh, 2014).

The third aim of the study, to test the relationship between CPB and child anxiety, was achieved by including child anxiety in the final model and testing for a significant relationship with CPB. We conducted this analysis separately for anxiety symptoms and presence of an anxiety disorder. In addition, we tested whether regression coefficients of the relation between CPB and child anxiety were invariant across fathers and mothers, and

across countries, by comparing the fit of models with and without equality constraints. For the model with presence of an anxiety disorder as dependent variable, a dichotomous variable, we used weighted least squares estimation.

RESULTS

Preliminary Analyses

Of the entire sample of 312 families, 10.3% had missing values: four on presence of anxiety disorder, six on anxiety symptoms, and seven on maternal and 18 on paternal CPB. The 32 families with missing data did not differ from the other families on any of the study variables (i.e., CPB and its subscales, child anxiety, child gender, and age; all $p > .05$). Missing data are handled in MPlus by full information maximum likelihood estimation (Muthén & Muthén, 1998–2015).

All continuous measures were checked for univariate outliers, using $z < -3.29$ or $z > 3.29$ as the criterion, which were truncated to a value near the first nonoutlier (Tabachnick, Fidell, & Osterlind, 2001). Skewness and kurtosis was $< |2|$ for all measures.

To explore whether child gender should be controlled for, we tested whether boys and girls differed on anxiety and on CPB, using independent-sample t tests. No significant child sex differences were found in child anxiety symptoms, $t(304) = 0.38$, $p = .703$, or presence of anxiety disorder, $t(306) = 0.12$, $p = .903$. Mothers showed no differences in CPB (or its subscales) toward sons or daughters. Fathers of sons showed more competition toward their child ($M = 3.03$, $SD = 0.77$) than fathers of daughters ($M = 2.84$, $SD = 0.77$), $t(292) = 2.11$, $p = .036$, but no differences on total CPB or other subscales were present. Because of the few differences (one of 16), child gender was not further addressed.

To explore whether age should be controlled for, correlations were calculated between child age and the study variables. Higher child age was related to higher CPB of mothers and fathers (both $r_s = .24$, $p < .001$) and several of its subscales: Teasing (mothers: $r = .24$, $p < .001$, fathers: $r = .22$, $p < .001$), Rough-and-Tumble Play (mothers: $r = .14$, $p = .011$, fathers: $r = .25$, $p < .001$), Social Daring (mothers: $r = .25$, $p < .001$, fathers: $r = .21$, $p < .001$), Modeling (mothers and fathers: $r = .18$, $p = .002$), and Mothers' Competition ($r = .14$, $p = .012$). Child age was unrelated to presence of anxiety disorder ($r = -.09$, $p = .127$), but higher child age was related to lower anxiety symptoms ($r = -.17$, $p = .003$). These age effects suggested necessity for controlling for age. Therefore, all analyses were also conducted using age as a covariate. The results were highly similar to the analyses without correcting for age, and age was uncorrelated to the common CPB factors ($r = .16$ for Dutch mothers, $.16$ for Dutch fathers, $.13$ for Australian mothers, and $.10$ for Australian fathers; all $p > .05$). Because the results were not affected by age, we report the results without using age as a covariate.

Descriptives and correlations of all raw study variables are presented in Table 2 (Dutch parents) and Table 3 (Australian parents). Fathers' CPB was significantly positively correlated with mothers' CPB (total score and across subscales) in both countries, indicating that fathers and mothers of a child tended to cohere in their level of CPB. Correlations across subscales of CPB were high and significant for fathers and mothers in both countries, indicative of high coherence among the scales. Correlations of CPB and its subscales with child anxiety symptoms showed low nonsignificant correlations for Dutch fathers, and low to modest correlations for Dutch mothers and Australian fathers and mothers. Almost all correlations between CPB and child anxiety were negative. Correlations of CPB with presence of anxiety disorder were low and mostly nonsignificant for Dutch

TABLE 2
Descriptives and Bivariate Correlations Between Study Variables for the Dutch Sample

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
<i>M</i>	—	—	45.40	21.8%	3.11	3.50	3.84	3.59	2.55	2.88	3.28
<i>SD</i>	—	—	8.12	—	0.82	0.85	0.65	0.56	0.81	0.75	0.56
1. Child Anxiety Symptoms	45.40	8.12	—	.42***	-.16+	-.26**	-.17*	-.20*	-.14 [†]	-.22*	-.25**
2. Child Presence of AD	21.8%	—	.42***	—	-.10	-.10	-.05	-.14 [†]	-.08	-.16 [†]	-.14 [†]
3. Teasing	3.50	0.80	-.03	-.01	.41***	.62***	.46***	.38***	.57***	.53***	.77***
4. Rough-and-Tumble Play	4.06	0.69	-.16 [†]	-.12	.60***	.36***	.51***	.47***	.46***	.62***	.80***
5. Encouragement of Risk Taking	3.87	0.60	-.17 [†]	-.07	.38***	.40***	.28**	.66***	.42***	.62***	.78***
6. Social Daring	3.53	0.52	-.14 [†]	-.19*	.26**	.32***	.65***	.30***	.39***	.53***	.74***
7. Competition	2.92	0.68	.00	.03	.57***	.46***	.38***	.41***	.20*	.49***	.70***
8. Modeling	2.93	0.65	.02	-.09	.46***	.39***	.48***	.47***	.46***	.29**	.83***
9. Total CPB	3.47	0.47	-.11	-.11	.75***	.72***	.74***	.71***	.73***	.75***	.39***

Note: Descriptives and correlations for fathers' challenging parenting behavior (CPB) are below the diagonal (lower left) and for mothers' CPB are above the diagonal (upper right), correlations on the diagonal are between fathers and mothers (in bold). AD = anxiety disorder.

* $p < .05$. ** $p < .01$. *** $p < .001$. [†] $p < .10$.

TABLE 3
Descriptives and Bivariate Correlations Between Study Variables for the Australian Sample

Variable	M	SD	1	2	3	4	5	6	7	8	9
M	—	—	53.95	45.2%	2.75	3.30	3.92	3.28	2.65	2.69	3.11
SD	—	—	14.57	—	0.74	0.85	0.66	0.61	0.87	0.72	0.55
1. Child Anxiety Symptoms	53.95	14.57	—	.74***	-.08	-.21**	-.22**	-.13	-.08	-.10	-.18*
2. Child Presence of AD	45.2%	—	.74***	—	-.05	-.16*	-.22**	-.17*	-.07	-.09	-.17*
3. Teasing	3.10	0.86	-.17*	-.08	.24**	.69***	.36***	.28***	.44***	.44***	.70***
4. Rough-and-Tumble Play	3.60	0.77	-.20*	-.21**	.66***	.34***	.51***	.32***	.33***	.50***	.75***
5. Encouragement of Risk Taking	3.83	0.66	-.19*	-.20*	.43***	.49***	.43***	.66***	.41***	.56***	.77***
6. Social Daring	3.12	0.60	-.09	-.03	.47***	.45***	.64***	.36***	.52***	.56***	.75***
7. Competition	2.93	0.86	-.14†	-.05	.55***	.37***	.42***	.61***	.35***	.53***	.75***
8. Modeling	2.69	0.73	-.10	.02	.56***	.42***	.50***	.65***	.54***	.37***	.80***
9. Total CPB	3.20	0.57	-.19*	-.11	.80***	.73***	.73***	.83***	.74***	.80***	.40***

Note: Descriptives and correlations for fathers' challenging parenting behavior (CPB) are below the diagonal (lower left) and for mothers' CPB are above the diagonal (upper right), correlations on the diagonal are between fathers and mothers (in bold). AD = anxiety disorder.
†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

parents and low to modest for Australian parents. Notably, in the Australian sample, mothers' as well as fathers' rough-and-tumble play and risk taking were the only subscales significantly associated with both measures of child anxiety. The pattern of CPB-anxiety correlations for Dutch parents was less clear. For Dutch fathers, significant negative associations were found only between social daring and presence of anxiety disorders, whereas for Dutch mothers, significant negative associations were found for rough-and-tumble play, risk taking, social daring, and modeling, but only with child anxiety symptoms.

Factor Structure and Measurement Invariance of CPB

We tested measurement invariance of the CPBQ across fathers and mothers and across countries in a series of CFA models. For all models, three residual factors were allowed to correlate (identical across groups and for all models) to improve model fit.

The initial two-factor configural model showed adequate fit across countries (Table 4), indicating that the basic model

structure of CPB does not differ between parents and countries. Configural fit was also established by significant standard factor loadings of .49 or higher (*p* < .001) for all scales on the factor (*M* = .67, *SD* = .08). The nested metric invariance model, with equal loadings for mothers and fathers and across countries, showed a good overall fit according to CFI and RMSEA measures (Table 4). Evaluation of change in model fit gave contrasting results: on one hand, a significant increase in chi-square (*p* = .023) and a notable decrease in CFI compared to the unconstrained model; on the other hand, a negligible increase in RMSEA and a nonsignificant change in ECVI (Table 4). Because two of these measures indicated acceptance of the model, and overall model fit of this model was good, we choose to accept the model, indicating equivalence of factor loadings across parents and countries. This means that we can be confident that the subscales of CPB hang together in the same way for mothers and fathers and for Australian and Dutch parents.

Next, we tested scalar invariance in a model nested within the metric invariance model, in which intercepts of the scales

TABLE 4
Summary of Model Fit Statistics for Cross-Parent and Cross-Country Measurement Invariance for the Challenging Parenting Behavior Questionnaire

	χ^2 (df)	CFI	RMSEA	$\Delta\chi^2$ (Δ df)	Δ CFI	Δ RMSEA	Δ ECVI	90% CI Δ ECVI
Configural Invariance	125.84 (82)	.973	.059					
Metric Invariance: Equal Loadings Across All Groups	153.69 (97)	.965	.061	27.84 (15)*	-.008	.002	-.007	[-.043, .054]
Scalar Invariance: Equal Intercepts Across All Groups	374.37 (112)	.839	.123	220.69 (15)***	-.126	.062	.615	[.472, .782]
Partial Scalar Invariance	169.17 (106)	.961	.062	15.49 (9)	-.004	.001	-.008	[-.029, .040]

Note: χ^2 = chi-square measure of absolute fit; CFI = comparative fit index; RMSEA = root mean square error of approximation; ECVI = Expected Cross Validation Index; configural invariance = evaluation of model structure without constraints across groups; metric equivalence = factor loadings equal across groups; scalar invariance = intercepts of observed variables equal across groups.

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

were constrained to be equal across fathers and mothers and across countries. This scalar invariance model showed a significant increase in chi-square ($p < .001$), a notable decrement in CFI and RMSEA fit, and a significant change in ECVI (Table 4), indicating that intercepts were not equal across fathers and mothers and across countries. Subsequently, we examined *partial* scalar invariance by removing constraints on intercepts one by one, going forward and backward, until we achieved good fit (Table 4). The final model has six intercepts that could not be constrained to be equal across groups: Given their scores on the CPB factor, Dutch fathers score higher than expected on teasing and rough-and-tumble play, Dutch mothers score lower than expected on competition, Australian fathers score lower than expected on social daring and modeling, and Australian mothers score higher than expected on risk taking. Thus, the final model showed invariance of all factor loadings and some intercepts. So, although the strength of the relations between the subscales and the underlying CPB construct is the same across Dutch and Australian mothers and fathers, they score differently on some subscales relative to their level of CPB.

Differences in Levels of CPB

Differences in mean level of the CPB factor between fathers and mothers and between countries were evaluated in Mplus using the nested model approach. That is, in the final model just described, we fixed the mean of the latent CPB factor (at 0) and its variance (at 1) using one parent/country (e.g., Dutch fathers) as a reference in order to test whether the other groups differed from the reference on this mean level of CPB. The results showed that the difference in mean level of CPB was not significant between Dutch fathers and mothers ($d = .03$, $SE = .124$, $p = .804$), but Australian fathers scored higher than Australian mothers ($d = .52$, $SE = .117$, $p < .001$). Dutch mothers scored significantly higher on CPB than Australian mothers ($d = .48$, $SE = .135$, $p < .001$), but Dutch and Australian fathers did not differ in level of CPB ($d = .01$, $SE = .156$, $p = .932$). Thus, Australian mothers seem to express lower levels of CPB than Australian fathers and Dutch fathers and mothers.

Prediction of Child Anxiety Symptoms by CPB

The third aim of the study—to test the hypothesized negative relation between CPB and child anxiety, especially for fathers—was analyzed by extending the structural equation model with the dependent variable child anxiety symptoms. Predictive relations of fathers' and mothers' CPB to child anxiety symptoms were simultaneously estimated (i.e., as two predictors) in the multigroup model with the two countries. The initial predictive model showed good fit, $\chi^2(126) = 190.28$, CFI = .961, RMSEA = .057, and revealed that only CPB of Dutch mothers was significantly related to less child anxiety symptoms ($B = -2.29$, $SE = 0.84$,

$p = .006$; Dutch fathers: $B = 0.18$, $SE = 1.10$, $p = .866$; Australian mothers: $B = -2.23$, $SE = 1.50$, $p = .136$; Australian fathers: $B = -1.37$, $SE = 1.47$, $p = .352$). Next, we tested whether regression coefficients could be constrained to be equal across parent gender and countries. This model fitted the data well, $\chi^2(129) = 192.90$, CFI = .961, RMSEA = .056. Model comparison revealed no significant increase in chi-square ($p = .455$) compared to the initial predictive model, and no change in ECVI ($\Delta ECVI = -.011$), 90% confidence interval $[-.010, .015]$. Thus, regression coefficients could be constrained to be equal across all four groups. The regression coefficient was negative and significant ($B = -1.63$, $SE = 0.41$, $p < .001$). Thus, when tested as simultaneous predictors, fathers' and mothers' CPB predict significantly less child anxiety symptoms, both in Australia and in the Netherlands.

Prediction of Presence of Child Anxiety Disorders by CPB

The same approach was used to test predictive relations of fathers' and mothers' CPB with presence of child clinical anxiety diagnosis. The initial model, in which predictive paths for each of the four groups was freely estimated, showed good fit, $\chi^2(48) = 60.35$, CFI = .951, RMSEA = .041. In this model, only higher CPB of Australian mothers predicted smaller risk for child anxiety disorder, at trend level ($B = -0.22$, $SE = 0.13$, $p = .098$; Australian fathers: $B = -0.07$, $SE = 0.13$, $p = .587$; Dutch mothers: $B = -0.16$, $SE = 0.14$, $p = .237$; Dutch fathers: $B = -0.14$, $SE = 0.18$, $p = .455$). The model with regression coefficients constrained to be equal across parent gender and countries fitted the data well, $\chi^2(44) = 49.75$, CFI = .977, RMSEA = .029. The good fit of this model showed that the regression coefficient could be constrained to be equal across all four groups and was significantly negative ($B = -0.15$, $SE = 0.05$, $p = .004$). Thus, the final model revealed that both Australian and Dutch fathers' and mothers' CPB predict a significantly smaller risk for child anxiety disorders.

DISCUSSION

The aims of this study were to (a) evaluate the measurement invariance of the CPBQ4-6 across mothers and fathers, and across Dutch and Australian parents; (b) establish whether levels of CPB differed across mothers and fathers, and across countries; and (c) examine whether parents' CPB predicted less child anxiety at both the symptom and disorder level. This is the first study to establish the measurement invariance of a measure of CPB across countries, and it was anticipated that, if invariant, results of this study would allow for the cross-cultural comparison of findings for the limited literature available in this area to date.

The results revealed equivalence of factor structure and factor loadings of the CPBQ4–6 across mothers and fathers, and across countries, and a pattern of significant subscale–factor loadings for all groups. This demonstrates that the subscales of the CPBQ4–6 cohere well, and load meaningfully onto a single factor, regardless of parent sex or parent country. Further, there is no evidence that some scales have a stronger contribution to the latent CPB factor than others across mothers and fathers, and across countries. Thus, the subscales appear to reflect meaningful subcomponents of CPB. These results are in line with the equivalence of factor structure and factor loadings found across fathers and mothers at 1 and 2½ years with earlier age versions of the CPBQ (Majdandžić et al., 2016). Our results extend the results of Majdandžić et al. (2016) in that we demonstrate equivalence of factor structure in 4-year-olds and across different countries in addition to fathers and mothers. This supports the notion of Fagan, Day, Lamb, and Cabrera (2014) that parenting constructs are similar for fathers and mothers; and this seems to hold also for CPB. In sum, these results are encouraging in that we can be confident about the factor structure of the CPBQ4-6 for use with fathers and mothers in different Western countries.

Subsequent analyses identified partial scalar invariance at the intercept level where six of 24 intercepts could not be constrained to be equal across groups. Although the partial scalar invariance model showed good fit, the necessity to free six intercepts to achieve this model demonstrated that there are some important differences that may need to be explored in future studies. For example, whereas Dutch mothers' and Australian mothers' and fathers' scores on the teasing and rough-and-tumble play scales of the CPBQ4-6 may be considered invariant (allowing comparison of these intercepts across these three groups), Dutch fathers reported more rough-and-tumble play than the other groups of parents, relative to their total CPB. Likewise, Australian mothers endorsed greater encouragement of children's participation in taking risks, relative to their general CPB than the other three groups. Thus, these noninvariant parameters displayed some differential functioning across countries and across parent sex at the intercept level. Noninvariance of intercepts may be indicative of potential measurement bias and suggests there may be cultural or parenting differences influencing the way parents respond to these subscales and thus should be investigated in future studies using this measure.

In exploring differences in the mean level of the CPB factor between mothers and fathers and between countries, it was found that Australian mothers reported lower levels of CPB than Australian fathers and Dutch parents. The effect sizes of these comparisons were of medium strength. We had no specific hypotheses regarding cultural differences and these preliminary results require confirmation through subsequent studies with a larger sample size. This result for Australian mothers could be interpreted within the context

of the theoretical underpinnings of this parenting behavior, whereby Bögels and Phares (2008) suggested that CPB is an important parenting behavior, which may be more characteristic of fathers' parenting. However, this does not explain why Dutch mothers were found to be similar in their reporting of CPB to Dutch and Australian fathers. Although CPB is hypothesized to be particularly salient for fathers, mothers have also been found to engage in this type of parenting behavior (Lazarus et al., 2016; Majdandžić et al., 2016). Previous studies found equal levels of self-rated CPB for Dutch mothers and fathers of 1-year-olds (Möller et al., 2014), more observed CPB of Dutch fathers than mothers of 2- but not 4-year-olds (Majdandžić et al., 2014), equal observed and self-rated CPB of Dutch mothers and fathers of 4-month-olds and 1-year-olds, but more self-rated paternal than maternal CPB at 2½ years old (Majdandžić et al., 2016). Together with the current results, these studies suggest that differences between Dutch fathers and mothers in CPB may be largest in toddlerhood, the age when physical play peaks (Leavell, Tamis-LeMonda, Ruble, Zosuls, & Cabrera, 2012). The finding that fathers of 3- to 4-year-olds show more CPB than mothers in Australia but not in the Netherlands may be due to smaller gender role differentiation in the Netherlands compared to other Western countries, as reflected by the Netherlands scoring lower (14) on masculinity than Australia (61; Hofstede, Hofstede, & Minkov, 2010).

Apart from the structure and measurement of CPB, an important issue is the functional relevance of this novel construct. The initial models revealed that for child anxiety symptoms, only CPB from Dutch mothers was related to significantly less child anxiety, and for child anxiety disorders, a borderline significant relationship was found only for CPB from Australian mothers. However, constraining the regression coefficients to be equal resulted in increased power, and the final model, which fitted for all groups, revealed that at both the symptom and disorder level, CPB was related to significantly less child anxiety for Dutch and Australian mothers and fathers. These negative relations between CPB and clinical measures of child anxiety, irrespective of parent gender and country, illustrate the potential clinical relevance of CPB.

Accumulating research in this area supports the idea that CPB exhibited by the father may act as a protective mechanism, but the relationship for mothers is less clear. For example, the findings from studies discussed earlier by Möller et al. (2014) and Majdandžić et al. (2014) suggest that fathers' CPB is associated with less anxiety in both infants and 4-year-old children, whereas mothers' CPB may have a positive association such that greater CPB from mothers was associated with greater child anxiety. The findings of the current study partly point in the opposite direction for mothers, because the initial and final models show a significant negative association with child anxiety for mothers' CPB. This may be because both mothers' CPB

and child anxiety were obtained from maternal reports. For fathers' CPB, negative associations between CPB and child anxiety were found only in the final models when testing equivalence of regression coefficients across groups. The disparate results for the relations of mothers' CPB with child anxiety in the literature may be explained by differences in measures used (i.e., Majdandžić et al., 2014, used observations to assess CPB and child anxiety; Möller et al., 2014, used temperamental fear as an outcome measure), or the developmental stage of the child (i.e., Möller et al.'s sample involved infants). The findings for fathers' CPB to date are more clear-cut and suggest a negative association between paternal CPB and child anxiety in infancy and, as confirmed in this study, at preschool age. Further research into this construct is warranted in order to enhance understanding of the interparental differences in mothers' and fathers' CPB and the relationship of CPB toward anxiety in offspring. Such efforts should take into account measurement method and age to unravel whether CPB holds different effects depending on developmental period of the child.

This study provides an important step forward in terms of identifying a measure of CPB that is appropriate for use with parents of preschool-age children from the Netherlands and Australia, and potentially in other English-speaking countries. The results identified CPB as a multifaceted and coherent construct. Most important, this study provides further answers with respect to this parenting behavior and its protective role toward childhood anxiety. A clear strength of the current study was the consistency across the samples in the measures of anxiety and of CPB, as well as similarity in the developmental stage of the children. However, a number of limitations require attention. First, the cross-sectional design of the current study means that it is not possible to delineate cause and effect; although it is possible that greater CPB predicts less child anxiety, it is also possible that a child that is less anxious elicits more physical engagement and risky stimulation from their parent. The only previous study using a longitudinal design found fathers' observed CPB to predict subsequent child social anxiety (Majdandžić et al., 2014) but did not explore the reverse direction. Second, an important limitation is the shared method variance from mothers. This study was conducted with preexisting data, and unfortunately in the Australian samples only maternal report of child anxiety was obtained. Although child anxiety data were obtained from fathers in the Dutch samples, in order to achieve consistency in measures used we also wished to have consistency of reporters and consequently chose to rely on mother-report of child anxiety. Future studies should try to obtain both maternal and paternal report of child anxiety. Third, the method of recruitment was not consistent across samples. The Australian study utilized an extreme-groups design to recruit children that were behaviorally inhibited and behaviorally uninhibited, whereas the Dutch samples were not selected. Findings should be interpreted in light of

this inconsistency, as this may have contributed to some of the differences obtained, such as the lower report of CPB from Australian mothers. Due to the use of preexisting data, consistency in recruitment could not be assured. Relatedly, because all samples included urban families from Western countries, generalizability to other cultures is limited. However, these limitations provide important pathways for future research. Fourth, there remains uncertainty as to why partial scalar invariance was obtained at the level of intercepts. Consequently, it would be valuable to examine the specific subcomponents of CPB (e.g., teasing, risk taking, rough-and-tumble-play) within larger samples to explore whether there are any underlying cultural or parent gender differences here.

This is the first study to establish the measurement invariance of a measure of CPB in 4-year-olds. The findings of the present study contribute to a growing body of research examining the function of this parenting behavior in terms of its potential protective role against childhood anxiety. This study confirmed the factor structure of the CPBQ4–6, and overall the measure is considered a coherent measure for the assessment of CPB in parents of preschool-age children. Larger studies are required to further investigate the cross-country and cross-parent gender invariance at the level of intercepts, and studies obtaining paternal report of child anxiety in addition to maternal report will be beneficial to the field. The current study highlights the importance of examining measurement invariance before testing hypotheses regarding mothers' and fathers' parenting behaviors and their relationship toward childhood anxiety disorders.

ACKNOWLEDGMENTS

We thank the parents and children for their participation in the studies.

FUNDING

The contributions of Mirjana Majdandžić, Wieke de Vente, and Susan M. Bögels were supported by an Innovation Research Vidi NWO grant, number 452-05-345, and an Innovation Research Vici NWO grant, number 453-09-001, which were provided by the Netherlands Organisation for Scientific Research (NWO) to Susan M. Bögels. The contributions of Rebecca S. Lazarus, Helen F. Dodd, Talia M. Morris, Yulisha Byrow, and Jennifer L. Hudson were supported by the Australian Research Council Grant DP0878609.

DISCLOSURE STATEMENT

All authors declare that they have no conflict of interest.

ORCID

Jennifer L. Hudson  <http://orcid.org/0000-0001-5778-2670>

REFERENCES

- Aktar, E., Majdandžić, M., de Vente, W., & Bögels, S. M. (2013). The interplay between expressed parental anxiety and infant behavioural inhibition predicts infant avoidance in a social referencing paradigm. *Journal of Child Psychology and Psychiatry*, *54*, 144–156. doi:10.1111/j.1469-7610.2012.02601.x
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Bodden, D., Dirksen, C., & Bögels, S. M. (2008). Societal burden of clinically anxious youth referred for treatment: A cost-of-illness study. *Journal of Abnormal Child Psychology*, *36*, 487–497. doi:10.1007/s10802-007-9194-4
- Bögels, S. M., Bamelis, L., & van der Bruggen, C. (2008). Parental rearing as a function of parent's own, partner's, and child anxiety status: Fathers make the difference. *Cognition and Emotion*, *22*(3), 522–538. doi:10.1080/02699930801886706
- Bögels, S. M., & Perotti, E. C. (2011). Does father know best? A formal model of the paternal influence on childhood social anxiety. *Journal of Child and Family Studies*, *20*(2), 171–181. doi:10.1007/s10826-010-9441-0
- Bögels, S. M., & Phares, V. (2008). Fathers' role in the etiology, prevention and treatment of child anxiety: A review and new model. *Clinical Psychology Review*, *28*(4), 539–558. doi:10.1016/j.cpr.2007.07.011
- Broeren, S., & Muris, P. (2008). Psychometric evaluation of two new parent-rating scales for measuring anxiety symptoms in young Dutch children. *Journal of Anxiety Disorders*, *22*(6), 949–958. doi:10.1016/j.janxdis.2007.09.008
- Broeren, S., & Muris, P. (2009). The relation between cognitive development and anxiety phenomena in children. *Journal of Child and Family Studies*, *18*, 702–709. doi:10.1007/s10826-009-9276-8
- Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods and Research*, *21*(2), 230–258. doi:10.1177/0049124192021002005
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *9*(2), 233–255. doi:10.1207/s15328007sem0902_5
- Creswell, C., Murray, L., Stacey, J., & Cooper, P. (2011). Parenting and child anxiety. In W. K. Silverman & A. P. Field (Eds.), *Anxiety disorders in children and adolescents* (2nd ed.) (pp. 299–322). New York, NY: Cambridge University Press.
- De Vente, W., Majdandžić, M., Colonesi, C., & Bögels, S. M. (2011). Intergenerational transmission of social anxiety: The role of paternal and maternal fear of negative child evaluation and parenting behaviour. *Journal of Experimental Psychopathology*, *2*(4), 509–530. doi:10.5127/jep.018811
- Edwards, S. L., Rapee, R. M., Kennedy, S. J., & Spence, S. H. (2010). The assessment of anxiety symptoms in preschool-aged children: The revised preschool anxiety scale. *Journal of Clinical Child and Adolescent Psychology*, *39*(3), 400–409. doi:10.1080/15374411003691701
- Fagan, J., Day, R., Lamb, M. E., & Cabrera, N. J. (2014). Should researchers conceptualize differently the dimensions of parenting for fathers and mothers? *Journal of Family Theory and Review*, *6*(4), 390–405. doi:10.1111/jftr.12044
- Greco, L. A., & Morris, T. L. (2002). Paternal child-rearing style and child social anxiety: Investigation of child perceptions and actual father behavior. *Journal of Psychopathology and Behavioral Assessment*, *24*(4), 259–267. doi:10.1023/a:1020779000183
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind* (3rd ed.). New York, NY: McGraw-Hill.
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, *3*(4), 424–453. doi:10.1037/1082-989x.3.4.424
- Hudson, J. L., & Rapee, R. M. (2002). Parent-child interactions in clinically anxious children and their siblings. *Journal of Clinical Child and Adolescent Psychology*, *31*, 548–555. doi:10.1207/s15374424jccp3104_13
- Lazarus, R. S., Dodd, H. F., Majdandžić, M., de Vente, W., Morris, T., Byrow, Y., ... Hudson, J. L. (2016). The relationship between challenging parenting behaviour and childhood anxiety disorders. *Journal of Affective Disorders*, *190*, 784–791. doi:10.1016/j.jad.2015.11.032
- Leavell, A. S., Tamis-LeMonda, C. S., Ruble, D. N., Zosuls, K. M., & Cabrera, N. J. (2012). African American, White and Latino fathers' activities with their sons and daughters in early childhood. *Sex Roles*, *66*(1–2), 53–65. doi:10.1007/s11199-011-0080-8
- Lynham, H. J., Abbott, M. J., & Rapee, R. M. (2007). Interrater reliability of the Anxiety Disorders Interview Schedule for DSM-IV: Child and parent version. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*(6), 731–736. doi:10.1097/chi.0b013e3180465a09
- Majdandžić, M., De Vente, W., & Bögels, S. M. (2010). *Challenging parenting behavior questionnaire: 4-6 Year Version (CPBQ4-6)*. Research institute of child development and education. Amsterdam, the Netherlands: University of Amsterdam.
- Majdandžić, M., De Vente, W., & Bögels, S. M. (2016). Challenging parenting behavior from infancy to toddlerhood: Etiology, measurement, and differences between fathers and mothers. *Infancy*, *21*(4), 423–452. doi:10.1111/inf.12125
- Majdandžić, M., Möller, E. L., De vente, W., Bögels, S. M., & van den Boom, D. C. (2014). Fathers' challenging parenting behavior prevents social anxiety development in their 4-year-old children: A longitudinal observational study. *Journal of Abnormal Child Psychology*, *42*(2), 301–310. doi:10.1007/s10802-013-9774-4
- McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review*, *27*(2), 155–172. doi:10.1016/j.cpr.2006.09.002
- Merikangas, K. R., He, J.-P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., ... Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents: Results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, *49*, 980–989. doi:10.1016/j.jaac.2010.05.017
- Milfont, T. L., & Fischer, R. (2015). Testing measurement invariance across groups: Applications in cross-cultural research. *International Journal of Psychological Research*, *3*(1), 111–130. doi:10.21500/20112084.857
- Möller, E. L., Majdandžić, M., & Bögels, S. M. (2014). Parental anxiety, parenting behavior, and infant anxiety: Differential associations for fathers and mothers. *Journal of Child and Family Studies*, *24*, 2626–2637. doi:10.1007/s10826-014-0065-7
- Möller, E. L., Nikolić, M., Majdandžić, M., & Bögels, S. M. (2016). Associations between maternal and paternal parenting behaviors, anxiety and its precursors in early childhood: A meta-analysis. *Clinical Psychology Review*, *45*, 17–33. doi:10.1016/j.cpr.2016.03.002
- Murray, L., Creswell, C., & Cooper, P. J. (2009). The development of anxiety disorders in childhood: An integrative review. *Psychological Medicine*, *39*, 1413–1423. doi:10.1017/s0033291709005157
- Muthén, L. K., & Muthén, B. O. (1998–2015). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén.
- Pahl, K. M., Barrett, P. M., & Gullo, M. J. (2012). Examining potential risk factors for anxiety in early childhood. *Journal of Anxiety Disorders*, *26*, 311–320. doi:10.1016/j.janxdis.2011.12.013

- Paquette, D. (2004). Theorizing the father-child relationship: Mechanisms and developmental outcomes. *Human Development, 47*, 193–219. doi:10.1159/000078723
- Rapee, R. M., Schniering, C. A., & Hudson, J. L. (2009). Anxiety disorders during childhood and adolescence: Origins and treatment. *Annual Review of Clinical Psychology, 5*, 335–365. doi:10.1146/annurev.clinpsy.032408.153628
- Sanson, A., Smart, D. F., Prior, M., Oberklaid, F., & Pedlow, R. (1994). The structure of temperament from Age 3 to 7 years: Age, sex, and socio-demographic influences. *Merrill-Palmer Quarterly, 40*, 233–252.
- Sass, D. A., Schmitt, T. A., & Marsh, H. W. (2014). Evaluating model fit with ordered categorical data within a measurement invariance framework: A comparison of estimators. *Structural Equation Modeling: A Multidisciplinary Journal, 21*(2), 167–180. doi:10.1080/10705511.2014.882658
- Silverman, W. K., & Albano, A. M. (1996). *The anxiety disorders interview schedule for children for DSM-IV: Child and Parent Versions*. San Antonio, TX: Psychological Corporation.
- Spence, S. H. (n.d.). Interpretation of scores. Retrieved from http://www.scaswebsite.com/index.php?p=1_30
- Spence, S. H., Rapee, R. M., McDonald, C., & Ingram, M. (2001). The structure of anxiety symptoms among preschoolers. *Behaviour Research and Therapy, 39*, 1293–1316. doi:10.1016/s0005-7967(00)00098-x
- Tabachnick, B. G., Fidell, L. S., & Osterlind, S. J. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Zubrick, S. R., Silburn, S. R., Burton, P., & Blair, E. (1999). Mental health disorders in children and young people: Scope, cause and prevention. *Australian and New Zealand Journal of Psychiatry, 34*, 570–578. doi:10.1046/j.1440-1614.2000.00703.x

APPENDIX

TABLE A1
Scales and Items of the Challenging Parenting Behavior Questionnaire for Parents of 4- to 6-Year-Old Children

<i>Items^a</i>	<i>Item No.</i>
Teasing (6)	
I play little tricks on my child.	1
I splash my child when we're in the swimming pool.	8
I almost never pull my child's leg. [reversed]	15R
I regularly tease my child for fun.	22
As a prank, I sometimes scare my child for fun, for instance, by popping up unexpectedly.	29
I pretend that I'm going to eat my child's sweets, for example, his/her cookies or dessert.	34
Rough-and-Tumble Play (6)	
I play boisterously with my child.	2
I almost never play rough and rowdy games with my child. [reversed]	9R
I sometimes play a game with my child in which I spin him/her around.	16
I enjoy having pillow fights with my child.	23
I enjoy tickling my child.	30
I sometimes play "tag" with my child: I chase after him/her and say in a low voice that I'm going to grab him/her.	35
Encouragement of Risk Taking (6)	
I encourage my child to do exciting things, such as jumping off high objects or climbing higher than he/she dares.	3
If my child finds something scary, I encourage him/her to carry on regardless.	10
If I see something that is new or exciting to my child, I encourage him/her to approach it.	17
In the bath or in the swimming pool, I encourage my child to duck his/her head under water.	24
I encourage my child to gain new experiences by, for example, eating something new or playing a new game.	31
If my child thinks that he/she can't do something, I encourage him/her to try again.	32
Social Daring (9)	
If my child comes to me because he/she is having a minor quarrel, I make him/her sort it out by himself/herself.	4
I encourage my child to approach unfamiliar people to ask them something.	5
I encourage my child to ask for himself/herself whether another child wants to play with him/her.	11
I encourage my child to say no if he/she doesn't want something	12
I encourage my child to perform for an audience by, for example, singing a song, dancing, or doing something sporty.	18
If my child wants to go on the seesaw or the swing, I let him/her ask for himself/herself if he/she may go on it.	19
I encourage my child to stay the night with a friend.	25
I encourage my child to stand up for himself/herself.	26
If another child snatches something from my child, I encourage my child to get it back.	36
Competition (5)	
When I play tag with my child, I make myself hard to catch.	6
I encourage my child to be the best.	13
I challenge my child to contests, for instance running races or arm wrestling.	20
I encourage my child to compete against other children.	27
I urge my child on when he/she is competing against other children	38
Modeling (7)	
I show my child how I stand up for myself.	7
My child often sees me approach unfamiliar people.	14
My child sometimes sees me tease others.	21
My child regularly sees me in situations in which I try to win games and competitions.	28
My child sometimes sees me horsing around (play boisterously/rough-and-tumble play) with others.	33
I show my child that I take risks.	37
I show my child that I engage with situations that I find exciting or scary.	39

Note: R = item should be reverse scored in the scale.

^aN = 39 items.