



The Relationship Between Parenting and Anxiety in Emerging Adulthood

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Abstract

Challenging parenting behavior (CPB) encompasses parental encouragement of children to push their own limits and take safe risks. Increased CPB has been associated with reduced anxiety scores in young children. This study sought to develop and evaluate a measure of CPB relevant to emerging adults (CPBQ-EA), and examine the relationship between anxiety and parenting behaviors, including; CPB, overprotection, rejection, and warmth. A sample of 442 18–25 year-olds completed self-report measures of anxiety and parenting. Exploratory factor analysis revealed three CPB domains; social, novelty, and competition. Greater social CPB was associated with lower social anxiety scores in emerging adults, but only when exhibited by fathers. Greater rejection exhibited by both parents was associated with higher emerging adult general anxiety and stress scores. These findings highlight the connection between paternal CPB and offspring social anxiety symptoms, the salience of parental rejection in emerging adult anxiety, and the importance of including fathers in parenting studies.

Keywords Challenging parenting behavior · Anxiety disorders · Social anxiety · Overprotection · Rejection · Warmth · Emerging adulthood

Introduction

The relationship between parenting behaviors and the development and maintenance of offspring anxiety has been the subject of extensive research (Möller et al. 2014; Verhoveven et al. 2012). In particular, parental overprotection and rejection are parenting behaviors empirically associated with child anxiety symptoms across development (For reviews see Bögels and Brechman-Toussaint 2006; McLeod et al. 2007a, b; Rapee 1997). Parental overprotection (used interchangeably with the word ‘control’ or ‘overcontrol’) occurs where parents provide more help and assistance to their child than necessary in an effort to protect them from potential danger (Hudson et al. 2011). Overprotection is theorized to increase the child’s perception of threat, as the child learns that the world is a dangerous place from which they need

protection. This, in turn, lowers perceived control and sense of mastery over their environment, hindering development of effective coping skills and ultimately resulting in reduced competence beliefs and increased anxiety (Hudson and Rapee 2001; Rapee 1997).

Parental rejection includes criticism, low warmth and low responsiveness to children’s emotions and behaviors (Clark and Ladd 2000). Using a non-clinical child sample, Gruner et al. (1999) found high levels of rejection exhibited by both mothers and fathers to be the most significant predictor of elevated anxiety symptoms. Correspondingly, retrospective studies with adult clinical samples have found positive associations between parent rejection and offspring anxiety, especially for adults with social anxiety (Arrindell et al. 1983; Muris and Merckelbach 1998). Parental warmth, often described as the opposite of rejection (used interchangeably with the term ‘acceptance’) includes expressions of positive regard, emotional support and affection (Yap and Jorm 2015). Parental warmth has been shown to enhance the perception of control, reduce the negative impact of overprotective and intrusive parenting behaviors, and facilitate resilience and adaptive coping strategies in adolescents, all of which inadvertently moderate the impact of stressors and

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enhance wellbeing (Fulton and Turner 2008; Raudino et al. 2013; Zakeri et al. 2010)

Despite these empirical links between *parenting* behaviors and offspring anxiety the majority of research to date has focused on the parenting behavior of *mothers*. The fathers' role in child anxiety etiology and maintenance has been largely overlooked in comparison, sparking interest towards the paternal role (Bögels and Perotti 2011). Theoretical exploration of the paternal role to date has led to the development of a novel parenting construct, termed challenging parenting behavior (CPB; Bögels and Phares 2008). CPB is the parental encouragement of children to push their own limits and take safe risks, while accounting for their specific capabilities and competencies (Majdandžić et al. 2014). CPB has been found to be negatively related to parental overinvolvement (Möller et al. 2014), and positively associated with parental warmth (Majdandžić et al. 2016).

Bögels and Perotti (2011) suggest a specific role for fathers in child anxiety etiology, or prevention thereof, through this concept of CPB. Traditional gender roles emphasize the role of fathers in domains of physical play, encouragement of safe risk-taking and the promotion of independence, and later, fostering children's transition to the external world (Bögels and Phares 2008). This emphasis on interaction with the outside world has led to the development of theoretical models built upon this notion that fathers have a significant, different influence over child anxiety development to mothers, specifically where social anxiety (or anxiety regarding the external world) is concerned (Bögels and Perotti 2011; Spence and Rapee 2016). Under a fundamental assumption that children tend to regard paternal reactions to social stimuli more highly than that of their mothers, Bögels and Perotti (2011) suggest that fathers with social anxiety are more likely to pass this on to their offspring than mothers with social anxiety. Given that paternal CPB has been linked to reduced social anxiety in children (Majdandžić et al. 2014), the aim of this paper will be to individually assess maternal and paternal parenting, whilst also examining the relationship between parenting and emerging adult social anxiety symptoms.

Extant literature on this construct has focused on the relationship between CPB and anxiety in infants and young children (Lazarus et al. 2016; Majdandžić et al. 2016; Majdandžić et al. 2014; Möller et al. 2014). In fact, the examination of parenting behaviors on offspring anxiety in general is largely limited to childhood and early adolescence (see reviews and meta-analyses by McLeod et al. 2007a, b; Yap et al. 2014). Arnett (2000) labels emerging adulthood as a distinct developmental period characterized by profound identity exploration and change, and a lack of age-specific norms. The period in which offspring potentially live under their parents' rules and expectations has extended (Arnett 2000), and Rapee and Spence (2004) suggest that

the magnitude of parent influence on the child may remain consistent as long as they are living at home. We know very little about the relationship between parenting and emerging adult anxiety, however emerging adulthood is a period where incidences and onset of anxiety such as; panic disorder (Cartwright-Hatton et al. 2006), agoraphobia (Costello et al. 2011) and social anxiety disorder (Kessler et al. 2005) are elevated, making it a period worthy of continued exploration. Consequently, it is important to establish pertinent factors involved in the development and maintenance of anxiety symptoms in the specific context of emerging adulthood. This study will be the first to examine the unique effect of CPB towards anxiety in emerging adulthood.

This study had five specific aims. First, to develop a reliable measure of perceived CPB, and explore the underlying factor structure of this construct, in an emerging adult population. Second, to examine the construct validity of the CPB measure by comparing it with the parenting constructs overprotection, rejection, and warmth. We hypothesized that CPB will have a significant negative relationship with parental overprotection and rejection, and a significant positive relationship with parental warmth. The third aim of the study was to explore the role of parent gender in light of the strong theoretical emphasis on paternal CPB; firstly, to examine whether mothers and fathers differ in CPB, and secondly, to determine the relative strength of father and mother CPB in predicting emerging adult anxiety, particularly social anxiety. Fourth, we aimed to explore whether parental overprotection, rejection and warmth are related to offspring anxiety in an emerging adulthood population. We hypothesized that parental overprotection and rejection will have a significant positive relationship with anxiety in emerging adulthood, such that greater perceived parental rejection or overprotection will be associated with greater emerging adult anxiety. We predicted that parental warmth will have a significant negative relationship with anxiety in emerging adulthood, such that more parental warmth will be associated with less emerging adult anxiety. The final aim was to examine the relationship between CPB and anxiety in emerging adulthood, extending upon the existing findings pertaining to CPB in infancy and childhood. We hypothesized that CPB will have a significant negative relationship with anxiety in emerging adulthood such that greater perceived CPB will be associated with less emerging adult anxiety.

Method

Participants

Two separate samples were used in the present study. Sample 1, a focus group, assisted with the adaptation of a pre-existing questionnaire to an emerging adult sample. Six students

(2 male) aged between 18 and 25 years (M age = 19.1) were recruited via the Macquarie University psychology participant pool. Following questionnaire adaptation, an independent sample was recruited (sample 2) via the Macquarie University psychology participant pool, and externally via Facebook posts on researcher and Macquarie University profiles with those aged 18–25 expected to make up a large proportion of their audience. In sample 2, 57 participants were excluded from analyses: 44 did not provide initial demographic information, 12 did not meet age requirements, and one reported demographic information that made them identifiable. Participants were eligible for the study if they were between the ages of 18–25, and had a current relationship with at least one living parent. The final sample ($N=442$) aged 18–25 ($M=20.02$, $SD=2.1$) consisted of 78.7% females, 20.8% males and 0.5% identified their gender as other. Participants predominantly identified as being of Oceanic ethnicity (49.8%), followed by North-West European (11.3%), North-East Asian (7.9%), North African and Middle Eastern (7.5%), South-East Asian (7.5%), Southern and Eastern European (6.6%), Southern and Central Asian (6.1%), People of the Americas (2.7%) and Sub-Saharan African (0.7%). Most participants identified their caregiver composition as two-parent, mother and father (88.7%), 9.3% as sole parent, mother, and 2% as sole parent, father. The majority (79.9%) of participants spoke English as their first language, and 75.8% reported that they currently live with their caregiver/s. Most participants reported seeing their parents 5–7 days per week (67.2%).

Measures

The Challenging Parenting Behavior Questionnaire—Scale Construction

Initial Item Selection The original version of the Challenging Parenting Behavior questionnaire (Majdandžić et al. 2010), is a parent-report assessment with age versions to facilitate measurement from infancy to adolescence (ages 0, 1, 2–3, 4–6, 7–12 and 12–18). This measure includes seven subscales: teasing, rough-and-tumble play, encouragement of risk-taking, social daring, competition, encouragement of assertiveness, and challenging modeling. For the purposes of this study, items from the 12–18-year-old English version of the CPBQ (Majdandžić et al. 2010) were used as a guide to construct items for the CPBQ-EA (Smout et al. 2016). As the CPBQ is a parent-report measure, items were converted from parent-report to self-report format. For example, the item “I play jokes on my child” became “My mother/father plays jokes on me”.

In addition to items from the existing measure, we reviewed qualitative data obtained from a retrospective study of challenging parenting behavior (Lazarus et al. 2018) to

explore the experience of challenging parenting behavior for an adult population. Risk-taking and social assertiveness subscales remained relevant for these participants; however adult participants additionally reported that their parents challenged them in academic, political, vocational, travel and personal domains. A number of proposed items were developed by the researchers of the current study to reflect these recurring sentiments, including “My mother/father makes effort to engage me in intellectual conversation”. The CPBQ 12–18 (Majdandžić et al. 2010) and 32 proposed new items from the qualitative data were taken to the focus group.

Scale Adaptation Focus group participants ($N=6$) were provided with a definition of CPB, asked to read items from the CPBQ 12–18 (Majdandžić et al. 2010), and propose new items for the CPBQ-EA (Smout et al. 2016). Participants were then asked to indicate the items they believed should be altered or removed. Discussions were voice-recorded, and written suggestions were kept and collated. The 36 items included in the draft measure can be seen in Appendix 1; 15 items were retained from the adolescent version, with the remainder consisting of new or adapted items.

Challenging Parenting Behavior Questionnaire Emerging Adult Version (CPBQ-EA) The CPBQ-EA was adapted for the present study in order to create a self-report measure of current perceptions of CPB appropriate to an emerging adult population. Participants completed the 36 items separately for each parent (mother $n=401$; father $n=366$) in reference to the parenting they currently receive, rating statements such as “My father/mother encourages me to undertake hobbies or activities where I will meet new people” on a five-point Likert scale from 1 (*not applicable*) to 5 (*completely applicable*). Seven items required reverse scoring.

The Short Egna Minnen Beträffande Uppfostran (s-EMBU) The s-EMBU (Arrindell et al. 1999) has 23 items loading onto three subscales; rejection, emotional warmth, and overprotection, and is administered twice to obtain separate ratings for mothers and fathers. The s-EMBU was administered concurrently, rather than retrospectively. For example, the item ‘my parents praised me’ became ‘my mother/father praises me’. The s-EMBU utilizes a 4-point Likert scale, ranging from 1 (*No, never*) to 4 (*Yes, most of the time*). Item 17 was reverse scored. The factor structure has been validated in university and Australian samples and is recommended as a reliable, functional equivalent to the longer version of the EMBU (Arrindell et al. 2005; Markus et al. 2003). The internal consistency of the subscales in the present study was good for fathers (rejection: $\alpha = .81$; warmth: $\alpha = .86$; overprotection: $\alpha = .86$) and mothers (rejection: $\alpha = .86$; warmth: $\alpha = .89$; overprotection: $\alpha = .90$).

The Depression and Anxiety Stress Scale (DASS-21) The DASS-21 (DASS-21; Lovibond and Lovibond 1995) is comprised of anxiety, stress and depression subscales and is recognized as a reliable and valid psychometric assessment of anxiety in students and adults (de Wilde and Rapee 2008; Osman et al. 2012). In the present study, only the stress (generalized worry) and anxiety (physiological arousal and anxiety) subscales were utilized (Brown et al. 1997). There are seven items for each scale, scored on a 4-point Likert scale ranging from 0 (*Did not apply to me at all*), to 3 (*Applies to me very much, or most of the time*). The internal consistency of DASS-21 subscales in the present study was found to be good for the stress ($\alpha=.87$) and anxiety subscales ($\alpha=.86$).

The Social Interaction Anxiety Scale (SIAS) The SIAS (Mattick and Clarke 1998) was administered to participants to assess social anxiety symptoms. Participants rated their fear across 20 social interactions (e.g. “I have difficulty making eye contact with others”) on a 5-point Likert scale from 0 (*not at all characteristic of me*) to 4 (*extremely characteristic of me*). Items 5, 9 and 11 were reverse scored. The internal consistency and test–retest reliability of the SIAS has been validated in community, undergraduate and clinical samples with Cronbach’s alphas ranging from .88 to .93 (Brown and Whiteside 2008; Mattick and Clarke 1998; Peters 2000). Internal reliability in the present study was excellent ($\alpha=.94$).

Procedure

Macquarie University Human Research Ethics Committee approved all procedures involved in the current study. Sample 2 participants were invited to complete an online questionnaire of approximately 30 min duration. After providing informed consent, participants provided demographic information and completed the parenting scales (CPBQ-EA, s-EMBU) separately for each parent, and the anxiety scales (DASS-21, SIAS) via the online survey platform, Qualtrics. Branched logic was applied to the questionnaire, whereby if participants indicated that their family composition included two mothers, they received two mother versions of each parenting scale. If they indicated a single parent household, they only completed one of each parenting measure. Participants from the psychology participant pool were reimbursed with course credit for their time, and external participants were reimbursed by going in the draw to win 1 of 3 \$50 gift vouchers.

Results

Approach to Exploratory Factor Analysis

As parents may differ in their expression of CPB and items may load differently for each parent, analyses were

conducted separately for mother and father scales. Although previous child and infant versions of the CPBQ had established subscales, it was unknown whether these would endure in an emerging adult population. Therefore, exploratory factor analysis (EFA) was performed on the sample 2 data to discern the underlying factorial structure. Principal axis factoring (PAF) was chosen in order to determine the underlying constructs that were expected to have an effect on outcome variables (Tabachnick and Fidell 2013b). We aimed to produce a measure with strong factor structure, therefore, several EFA’s were performed where items with low communalities ($<.4$) (Costello and Osborne 2005) were removed individually, until all items that remained had satisfactory communalities. Initial iterations were performed without rotation in order to understand the true nature of the data. An oblique rotation method (direct oblimin; $\delta=0$) was later applied to permit the natural correlation of the items (see Costello and Osborne 2005). The Kaiser Measure of Sampling Adequacy (KMO; Kaiser and Rice 1974) showed that both scales were appropriate for factor analysis as they obtained values greater than .70 (Mother; KMO = .92. Father; KMO = .92).

CPBQ-EA Father

PAF was conducted on the father scale first. The original 36 CPBQ items resulted in a 7-factor solution with eigenvalues greater than one (12.3, 3.4, 2.6, 1.6, 1.4, 1.2, 1.2). Examination of the scree plot, suggested by Costello and Osborne (2005) to be the best indicator of factor retention, identified a 4-factor solution and Horn’s parallel analysis suggested the retention of 8 factors as appropriate (Horn 1965). However, these 8 factors did not make conceptual sense, a number of factors contained fewer than 3 items, and many items had weak communalities. The item with the lowest communality (.29) was excluded and the analysis was re-run. This procedure was repeated until there were no communalities $<.4$. This produced a rotated 4-factor solution of 25 items that explained 59.8% of the variance, in accordance with the original scree-plot findings. At this point, factor analysis of the mother CPBQ-EA began to provide comparison.

CPBQ-EA Mother

PAF resulted in 7 factors with eigenvalues greater than one (11.3, 3.5, 1.8, 1.7, 1.3, 1.1, 1.1). Examination of the scree plot suggested a 3-factor solution, and Horn’s parallel analysis suggested the retention of 8 factors as appropriate (Horn 1965). However, these 8 factors did not fit the data well for the same reasons as the father solution. The item with the lowest communality (.16) was excluded first, and the analysis was re-run. This procedure was repeated until all items fit the data well and had satisfactory communalities, resulting

in a 4-factor rotated solution of 26 items that explained 57.1% of the variance.

Final Model

The exclusion iteration procedure was continued from this point concurrently for both mother and father versions. As it was intended for both scales to contain the same items to facilitate dissemination of the measure, decisions to retain or remove further items were made according to suitability. Item 34 had a cross-loading in the father version (Teasing: .34; Competition: .44), however was retained because when removed from the mother version, factors merged incomprehensibly. In the final stage, items 7, 13 and 23 were removed due to inconsistent or low factor loadings across both versions, and item 36 was returned into the father version as it loaded well for mothers. A model of 23 items was reached where both scales contained the same items, all items loaded meaningfully onto 4 factors, and communalities of all items were satisfactory. The final mother version explained 57.5% of the variance, and the father version explained 60.2% of the variance. The 4 factors represented concepts pertaining to parental encouragement of social assertion and personal fulfilment ('Social'; 10 items), competitiveness

('Competition'; 5 items), light-hearted teasing and joking ('Teasing'; 3 items) and encouragement of trying new things ('Novelty'; 5 items). However, the teasing subscale was excluded from subsequent analyses due to the fact it only contained 3 items. A factor with fewer than 3 items is potentially weak or unstable, where 5 or more strongly loading items per factor are recommended (Costello and Osborne 2005). This in turn eliminated the aforementioned cross-loading item in the father version. The final 20-item questionnaire can be seen in Appendix 2. In the mother version, social accounted for 39.3% of the variance, competition 11.6%, and novelty 2.7%. In the father version, social accounted for 40.9% of the variance, competition 12.0%, and novelty 3.9%. Factor loadings from the pattern matrix for items in the final scales are presented in Table 1. For the father version, Cronbach's alpha values were good to excellent (social: $\alpha = 0.93$; competition: $\alpha = .85$; novelty: $\alpha = .90$). Similar results were obtained for the mother version (social: $\alpha = .93$; competition: $\alpha = .82$; novelty: $\alpha = .88$).

Data Analysis Plan

Data obtained from the online questionnaire was exported to SPSS 22.0. Of the final sample, 38 participants had missing

Table 1 Item-factor loadings for exploratory factor analysis with oblimin rotation of the CPBQ-EA mother and father versions

Questionnaire item	Social	Competition	Novelty
My mother/father encourages me to speak my mind and back myself	.68/.66		
My mother/father promotes the importance of being socially assertive and standing up for myself	.79/.73		
My mother/father encourages me to do my best	.63/.82		
My mother/father challenges me by engaging in intellectual conversation	.42/.37		
My mother/father encourages me to stick up for myself if others try to take advantage of me	.90/.81		
My mother/father encourages me to stand up for my opinion and beliefs	.82/.76		
My mother/father encourages acts of leadership and independence, such as stepping up in the workplace	.65/.59		
My mother/father encourages me to excel	.68/.71		
My mother/father tells me to be my own person	.67/.56		
My mother/father encourages me to keep active, healthy and fit	.61/.43		
My mother/father tries to beat me at sports		.97/.94	
If I'm playing sport with my mother/father, she/he tries to win		.66/.77	
My mother/father challenges me to competitive games like cards, soccer or running races		.69/.52	/- .32
My mother/father challenges me to physical contests (for example play fighting, running, tennis, arm wrestling, etc.)		.68/.50	
I play rough contact sports with my mother/father		.43/.32	
My mother/father encourages me to talk to new people and pursue new interests	.30		- .58/- .74
My mother/father encourages me to undertake new things, such as going on holiday alone or having a part time job			- .74/- .65
My mother/father encourages me to undertake hobbies or activities where I will meet new people			- .84/- .83
My mother/father encourages me to take initiative in social contexts. For example, organising a party			- .47/- .67
My mother/father encourages me to try new things, such as travelling alone or considering a new career			- .75/.76

Loadings < 0.3 were omitted for clarity of interpretation

Values in boldface represent the loading of the item onto its respective factor

data for the DASS-21 and SIAS, 49 participants had missing data for the mother version of the s-EMBU subscales, 76 participants had missing data for the father s-EMBU subscales, 41 participants for the mother version of the CPBQ-EA, and 76 participants for the father CPBQ-EA.

Analyses were interpreted at the significance level of $\alpha=.05$. The construct validity of the final CPBQ-EA subscales was established through Spearman's rho correlations with s-EMBU subscales. The relationship between concurrent parental overprotection, rejection, warmth and CPB with emerging adults' current anxiety was examined through a series of hierarchical multiple regression analyses (MRA) whilst controlling for potential covariates (i.e. gender). Three measures of current anxiety were examined; physiological arousal and anxiety (anxiety), generalized worry (stress), and social anxiety. The hypothesis that emerging adults reported CPB may differ between mothers and fathers was examined via paired samples t-tests.

Descriptive summaries of variables utilised in the current study are available in Table 2. All variables violated the Kolmogorov–Smirnov and Shapiro–Wilk significance statistics ($p < .05$), likely reflective of the large sample size (Tabachnick and Fidell 2013a). As such, the normal curve rather than the significance level was used to determine whether, and which, transformation was necessary (Field 2013a, b). Square root and reflected square root transformations improved skewness and kurtosis values to within an acceptable range for CPBQ scales, but not for s-EMBU scales. Subsequent analyses were run using both the transformed, and untransformed data. Analyses with transformations yielded the same pattern of results as those without.

Furthermore, different subscales within the same questionnaires had inconsistent transformations applied, with other subscales having no transformations, which is not desirable (Field 2013a, b). Consequently, untransformed variables are reported here with bootstrapping, described as a method robust to violations of assumptions and outliers (Field 2013a, b). Non-parametric test equivalents were used where applicable.

Demographic Analyses

Total Sample

Chi square and F-tests were conducted to examine potential differences between sample participants recruited internally (university students) or externally (via social media channels) on demographic variables. Significant differences were found for age, ethnicity, whether English was the second language (ESL), whether participants currently lived at home, and the amount of time per week spent with parents. Consequently, a series of one-way between groups analysis of variance (ANOVAs) were conducted, examining the relationship between these demographic variables with responses on the anxiety outcome variables; social anxiety (SIAS), anxiety and stress (DASS-21) (See Table 3). Living at home was significantly related with lower anxiety scores ($p=.03$). Amount of time spent per week with parents was significantly related with anxiety ($p=.01$) and stress scores ($p=.003$), with more time spent with parents being associated with lower anxiety scores. Finally, higher participant age was significantly related to higher stress scores ($p=.03$).

Table 2 Means, minimums, maximums, standard deviations, skewness and kurtosis for all variables

Scale	Version	Subscale	N	Minimum	Maximum	Mean	SD	Skew	Kurtosis
SIAS total			404	18.00	92.00	44.59	15.35	0.61	-0.21
DASS-21									
		Anxiety	404	0.00	21.00	6.70	4.93	0.65	-0.30
		Stress	404	0.00	21.00	8.53	5.08	0.22	-0.64
CPBQ-EA									
	Mother	Social	401	10.00	50.00	39.13	9.28	-1.13	0.93
		Competition	401	5.00	25.00	8.88	4.33	1.15	0.66
		Novelty	401	5.00	25.00	17.50	5.19	-0.57	-0.44
	Father	Social	366	10.00	50.00	39.44	9.15	-1.13	0.93
		Competition	366	5.00	25.00	12.89	5.46	0.21	-0.90
		Novelty	366	5.00	25.00	16.98	5.43	-0.45	0.13
s-EMBU									
	Mother	Overprotection	393	8.00	35.00	19.11	6.73	0.54	-0.75
		Emotional warmth	393	6.00	24.00	18.82	4.41	-0.89	0.20
		Rejection	393	5.00	28.00	10.47	4.19	1.77	3.39
	Father	Overprotection	366	9.00	33.00	15.90	5.55	0.56	0.24
		Emotional warmth	366	6.00	18.00	17.01	4.36	-0.36	-0.72
		Rejection	366	6.00	24.00	9.82	3.52	1.60	2.15

Table 3 Univariate ANOVA results examining the relationship between ethnicity, ESL, living at home, time spent with parents and participant age relating to anxiety scores

Variable	SIAS			DASS-21 anxiety			DASS-21 stress		
	<i>n</i>	<i>F</i> values	Sig.	<i>n</i>	<i>F</i> values	Sig.	<i>n</i>	<i>F</i> values	Sig.
Ethnicity	404	1.083	0.374	404	0.869	0.542	404	1.074	.380
ESL	404	0.363	0.547	404	0.002	0.967	404	1.164	.281
Living at home	404	0.140	0.709	404	4.521	0.034*	404	1.458	.228
Time spent with parents p/w	404	0.265	0.851	404	3.921	0.009*	404	4.740	.003*
Age	404	0.941	0.475	404	1.577	0.140	404	2.212	.033*

* $p < 0.05$

Hierarchical multiple regression analyses predicting anxiety thus needed control for age, time spent with parents, and living at home.

Relationships Among Parenting Variables

Spearman's Rho correlations were run between all predictor and criterion variables, due to some variables not conforming to normality prerequisites (see Table 4). A preliminary aim of the present paper was to establish the way in which the novel parenting construct of CPB is related to parenting behaviors of warmth, overprotection and rejection as measured by the s-EMBU, thus assessing the construct validity of the new scale. The correlation coefficients between parenting subscales can also be seen in Table 4.

For both mothers and fathers, higher social and novel CPB was significantly associated with decreased rejection, decreased overprotection and increased warmth. Increased competition was only significantly associated with increased paternal warmth, and not with maternal warmth, parental rejection or overprotection.

Differences in Maternal and Paternal Challenging Parenting

Paired samples t-tests were conducted to discern any differences in mother and father CPB. There appeared to be no significant difference in the perceived amount of social CPB exhibited by mothers and fathers, $t(345) = .742$, $p = .47$. However, emerging adults perceived their fathers as

exhibiting significantly more competitive challenging parenting behavior ($M = 13.0$, $SD = 5.64$) than mothers ($M = 9.03$, $SD = 5.64$), $t(345) = -12.965$, $p = .001$ with a large effect size ($sr^2 = .33$). Furthermore, emerging adults perceived their mothers as exhibiting significantly more novelty based challenging parenting behavior ($M = 17.95$, $SD = 4.88$) than fathers ($M = 17.15$, $SD = 4.88$), $t(345) = 3.050$, $p = .01$. However, the eta-squared statistic ($sr^2 = .03$) indicated a small effect size.

Hierarchical Multiple Regression: Parenting Behaviors and Emerging Adult Anxiety

Regression models were run using bootstrapping with 1000 replications separately for each outcome variable: social anxiety, anxiety and stress. The demographic variable pertaining to living at home was removed due to multicollinearity with the "see parents 5–7 days a week" variable, which was retained as it was considered more descriptive. No other variables had tol/VIF values that lay outside the appropriate range of < 0.1 (tol) and > 10 (VIF) (Field 2013a, b). Resultantly, all models were run controlling for age and days per week spent with parents (dummy coded into 1–2 days per week, 3–4 days per week and 5–7 days per week). However, the pattern of results between parenting variables and anxiety outcomes were comparable in models controlling for these variables, and without. As such, the standardized (β) regression coefficients, unstandardized (B) bootstrapped coefficients (with 95% confidence intervals) and squared semi-partial correlations (sr^2) for the parenting

Table 4 Correlations between parenting constructs as measured by the CPBQ-EA and the s-EMBU

CPBQ-EA	s-EMBU					
	Mother			Father		
	Rejection	Overprotection	Warmth	Rejection	Overprotection	Warmth
Social	-.38**	-.23**	.66**	-.33**	-.14*	.65**
Competition	.05	.01	.05	.09	.02	.19**
Novelty	-.32**	-.21**	.55**	-.21**	-.15**	.53**

* $p < .05$; ** $p < 0.01$

predictors reported in Table 5 are reported from regression models not controlling for age or days per week spent with parents. Mother and father versions of parenting subscales were entered into the same models as multicollinearity was not of concern.

For each analysis, variables were entered in the following order: father s-EMBU subscales (rejection, warmth, overprotection), mother s-EMBU subscales (rejection, warmth, overprotection), father CPBQ-EA subscales (social, competition, novelty), mother CPBQ-EA subscales (social, competition, novelty).

Social Anxiety

The model as a whole was statistically significant explaining 20.4% of the total variance, $\Delta R^2 = .20$, $\Delta F (12, 333) = 7.09$, $p < .001$. The father social subscale was the

only significant predictor of emerging adult social anxiety scores, $B = -0.37$, $p = .048$, accounting for a significant 1.2% of the variance. Father social was negatively related to social anxiety scores.

Anxiety

The model as a whole was statistically significant explaining 18.8% of the total variance, $\Delta R^2 = .19$, $\Delta F (12, 333) = 6.42$, $p < .001$. Mother and father rejection subscales were significant predictors of emerging adult anxiety scores (mother rejection: $B = 0.25$, $p = .02$; father rejection: $B = 0.45$, $p = .001$). Each explained a significant, unique proportion of variance in anxiety (mother rejection: 1%, father rejection: 4%). Mother and father rejection were positively related to anxiety scores.

Table 5 Hierarchical multiple regression analyses predicting emerging adult anxiety from parenting behaviours of mothers and fathers

Predictor	Outcome variable								
	SIAS			DASSas			DASSss		
	<i>B</i> [95% CI]	β	<i>sr</i> ²	<i>B</i> [95% CI]	β	<i>sr</i> ²	<i>B</i> [95% CI]	β	<i>sr</i> ²
<i>Father</i>									
Rejection	0.64 [-0.06, 1.32]	0.14	.01	0.45** [0.23, 0.66]	0.31**	.04	0.44** [0.19, 0.66]	0.29**	.04
Warmth	0.39 [-0.21, 0.93]	0.11	.00	0/15 [-0.06, 0.34]	0.13	.01	0.13 [-0.09, 0.32]	0.11	.00
Overprotection	0.33 [-0.07, 0.71]	0.12	.01	-0.03 [-0.14, 0.08]	-0.04	.00	-0.01 [-0.12, 0.10]	-0.12	.00
Social CPB	-0.37* [-0.76, -0.01]	-0.21*	.01	-0.05 [-0.16, 0.05]	-0.10	.00	-0.11* [-0.22, -0.00]	-0.18	.01
Competition CPB	-0.01 [-0.31, 0.28]	-0.01	.00	-0.05 [-0.14, 0.06]	-0.05	.00	-0.07 [-0.17, 0.04]	-0.08	.00
Novelty CPB	0.22 [-0.27, 0.74]	0.08	.00	0.06 [-0.11, 0.23]	0.07	.00	0.09 [-0.06, 0.26]	0.10	.00
<i>Mother</i>									
Rejection	0.41 [-0.28, 1.07]	0.10	.00	0.25* [0.05, 0.46]	0.19*	.01	0.25* [0.03, 0.47]	0.18*	.01
Warmth	-0.15 [0.78, 0.52]	-0.04	.00	0.03 [-0.18, 0.26]	0.03	.00	0.10 [-0.12, 0.33]	0.08	.00
Overprotection	-0.01 [-0.31, 0.32]	-0.01	.00	0.01 [-0.10, 0.11]	0.02	.00	0.01 [-0.10, 0.13]	0.01	.00
Social CPB	-0.19 [-0.54, 0.21]	-0.10	.00	-0.04 [-0.14, 0.08]	-0.06	.00	-0.03 [-0.15, 0.09]	-0.06	.00
Competition CPB	-0.08 [-0.44, 0.29]	-0.02	.00	0.03 [-0.08, 0.15]	0.02	.00	-0.05 [-0.16, 0.08]	-0.04	.00
Novelty CPB	-0.20 [-0.81, 0.34]	-0.07	.00	-0.01 [-0.18, 0.15]	-0.01	.00	0.05 [-0.13, 0.22]	0.05	.00

Results are reported controlling for age and days per week spent with parents. *B*=unstandardized bootstrapped regression coefficient; 95% CI=95% confidence interval calculated based on 10,000 bootstrap samples; β =standardized regression coefficient; *sr*²=squared semi-partial correlations

Statistical significance: * $p \leq 0.5$. ** $p \leq 0.01$

Stress

The model as a whole explained a statistically significant 17% of the total variance, $\Delta R^2 = .17$, $\Delta F(12, 333) = 5.68$, $p < .001$. Mother and father rejection subscales were, once again, the only significant predictors of emerging adult anxiety scores (mother rejection: $B = 0.25$, $p = .03$; father rejection: $B = 0.44$, $p = .001$). Each explained a significant, unique proportion of variance in anxiety (mother rejection: 1%, father rejection: 4%). Of note is the trend that emerged for the father social subscale, $B = -1.11$, $p = .053$, which was negatively related to stress scores.

Discussion

The present study adds to the anxiety literature by exploring a novel construct, challenging parenting behavior (CPB), in a developmental period with a high incidence of anxiety disorders. Exploratory factor analysis (EFA) revealed three distinct, conceptually meaningful subdomains representing CPB: social assertion and personal fulfillment, competitiveness, and trying new things. The subscales and respective items in the emerging adult version echo those of the original infant versions, namely encouragement of assertiveness and social daringness, competition, and encouragement of risk-taking (Majdandžic et al. 2010). The final sample size exceeded 300 participants, satisfying sample requirements for EFA, and internal consistency was good to excellent for the three final subscales. Subscales from the original version of the questionnaire that did not arise in the emerging adult version were rough-and-tumble play, teasing, and challenging modeling. Although a teasing subscale existed originally, it was removed due to too few items. We suggest these differences may be due to the differential developmental demands relevant to emerging adulthood compared to infancy, discussed in further detail in a subsequent section. It was predicted that CPB would be negatively related to overprotection and rejection, but positively related to warmth.

CPB characterized by encouragement of social assertion and trying new things was negatively related to both parental overprotection and rejection, consistent with the literature to date. For example, Majdandžic et al. (2016) and Möller et al. (2014) found CPB to be negatively associated with overprotection. Overprotective parenting is suggested to promote cognitions of the world as a dangerous, unpredictable place (Hudson et al. 2011; Rapee et al. 2009). By contrast, in CPB, curiosity, independence and safe risk-taking are strongly encouraged (Majdandžic et al. 2014; Spence and Rapee 2016). Furthermore, rejection works to reduce self-esteem and confidence in positive outcomes (Rapee 1997; Wood et al. 2003), whereas CPB promotes independence and social confidence through safe, appropriate challenges

(Majdandžic et al. 2014). Higher levels of warmth were strongly associated with higher levels of CPB characterized by encouragement of social assertion and trying new things for both parents. This is also consistent with findings from Majdandžic et al. (2016) and Möller et al. (2014) who also found CPB to be positively associated with warmth. In summary, these findings attest to the construct validity of CPB as a positive, supportive parenting behavior exhibited by strong, positive correlations with warmth, and negative correlations with overprotection and rejection. Our findings suggest CPB has a stronger correlation with rejection than overprotection, however, replication of these findings is necessary before conclusions are warranted.

With respect to the relationship between parenting behaviors and emerging adult anxiety, statistically significant predictors varied by anxiety type. In social anxiety, only parenting characterized by encouraging social assertion exhibited by the father was a significant predictor of reduced social anxiety scores. In generalized anxiety, rejection exhibited by both mothers and fathers significantly predicted increased anxiety scores. Correspondingly, in terms of stress scores, rejection exhibited by both parents was a significant predictor, such that higher reported parental rejection was associated with increased stress scores. A trend also appeared whereby increased reported father social assertion was associated with reduced stress scores.

Regarding traditional parenting behaviours, it appears from our findings that rejection may be particularly salient in emerging adulthood anxiety. Rejection emerged as the strongest traditional parenting predictor of anxiety, explaining between 1 and 4% of the variance of emerging adult generalized anxiety or stress scores. This corresponds with findings by Gruner et al. (1999), who also found rejection to be the most important predictor of anxiety in children, and findings by Verhoeven et al. (2012) who found paternal rejection to be significantly associated with anxiety in adolescents. Thus, whilst some research has argued that rejection is more salient in child depression (Rapee 1997), perhaps, for emerging adult anxiety, this is a parenting domain warranting further empirical investigation.

Although results of this study suggest that parental rejection may be particularly important in emerging adult anxiety, contrary to the hypotheses, parental overprotection and warmth failed to reach significance as predictors of any anxiety symptoms after controlling for age and time spent with parents. This presents a contrast with the trend in the literature to place importance on parental (particularly maternal) overprotection in the development of anxiety symptoms in children (e.g. McLeod et al. 2007a, b). The lack of association between overprotection and anxiety may be a reflection of the increased likelihood of emerging adults to live independently or out of home in comparison with child samples. Thus, perhaps this finding is confounded by the

developmental stage of emerging adulthood, as offspring are navigating through this period of exploration, change and uncertainty (Arnett 2000).

Father encouragement of social assertiveness appears important in emerging adult social anxiety. This is in line with the theoretical underpinnings of this construct (see Bögels and Perotti 2011; Bögels and Phares 2008), where it is proposed that fathers interact more physically, excitedly, and unpredictably with their children—fostering active, independent exploration and socialisation outside the family. It is this emphasis on interaction with the outside world that leads Bögels and colleagues (Bögels and Phares 2008; Bögels et al. 2011) to conclude that CPB may be most relevant to social anxiety outcomes, rather than anxiety more broadly. This is in accord with the recent argument put forward by Spence and Rapee (2016), who note the potentially protective role of paternal CPB in the etiology of social anxiety. The findings of the present study are also reflective of initial empirical findings of CPB, whereby Majdandžic et al. (2014) found paternal CPB predicted less observed social anxiety symptoms in 4-year old children.

The findings in the present study again support the theoretical origins of CPB (Bögels and Perotti 2011; Bögels and Phares 2008) and early empirical findings to date (Majdandžic et al. 2014; Möller et al. 2014) suggesting that CPB is a parenting domain that may be particularly relevant for fathers. Of the research that has been conducted to date on this parenting domain for mothers, the findings present a mixed picture. For example, mother CPB has been shown to be associated with increased anxiety symptoms in one instance (Majdandžic et al. 2014), and decreased anxiety symptoms in another (Lazarus et al. (2016). Nonetheless, given our study found paternal social CPB to be associated with reduced emerging adult social anxiety, consistent with the theoretical and empirical evidence conducted in younger children, it may be that CPB when exhibited by fathers' is an important domain for continued exploration, especially given the additional trend that emerged whereby father social CPB was associated with lower stress scores.

When comparing mothers' and fathers' CPB we found that parents did not significantly differ on parenting behaviours characterised by encouraging social assertiveness. This is interesting to note, given that this behaviour was associated with reduced social anxiety only when exhibited by fathers. It appears this finding is therefore not merely a product of a differential amount of social CPB exhibited, but that the gender of the parent exhibiting the behaviour is indeed meaningful. Differences emerged whereby fathers were perceived to engage in more competitive encouragement than mothers, and mothers were more likely to encourage trying new things than fathers. In accord with the argument that the most salient differences in parental CPB lie in physical domains, in the present study, fathers displayed more

competitiveness than mothers, and the effect size was large. Although all relationships were in the expected direction, it is interesting to note that CPB characterized by the encouragement of competitiveness or trying new things did not predict social anxiety, generalized anxiety or stress scores. These are unexpected findings. In terms of competitiveness, items within this subscale embodied physical activity e.g. 'my mother/father tries to beat me at sports'. Although the theoretical underpinnings of CPB place importance on physical components such as rough-and-tumble play (Bögels and Phares 2008), it has also been acknowledged that this emphasis may vary by developmental stage (Majdandžic et al. 2016). Thus, it may be that physical challenging from parents may be more salient in infancy or toddlerhood, than in emerging adulthood.

A number of limitations should be acknowledged when interpreting the findings of the current study. The first being the correlational design, meaning causality and directionality cannot be inferred between parenting and anxiety variables. Further, the parenting and anxiety measures used were also all self-report inventories. Although this facilitated collection of a large amount of data, responses are subject to social desirability biases, and may be influenced by participant anxiety. These methods, whilst necessary in the early stages of construct investigation, may potentially reduce the validity of results, calling for replication of these findings for this novel parenting domain. The findings and limitations of the current study also present a number of avenues for future research. Firstly, given depression symptoms were not measured in the present study due to their stronger links with critical parenting (McLeod et al. 2007a, b), future research would benefit from investigation of the relation between the construct of CPB and symptoms of other internalizing disorders. Secondly, the differential effect of important aspects of family composition and lifestyle factors were not addressed here. Given that significant sample differences were found for ethnicity, whether English was the second language (ESL), whether participants currently lived at home, and the amount of time per week spent with parents, it is likely that associations between parenting and anxiety variables might differ accordingly. Future research would do well to analyse results by culture and/or family composition (single parent, same sex parent).

The current study provides a preliminary measure of CPB in emerging adulthood. Only CPB that encourages social assertion and personal fulfilment emerged as a significant predictor of emerging adult social anxiety scores, and only when exhibited by the father. Findings also shed light on the fact that rejecting behaviors may be more relevant to emerging adult anxiety symptoms than CPB, warmth, and even overprotection. One of the most salient clinical implications arising from this study is that an increase in social CPB from fathers, and a reduction in rejecting behaviours from both

parents may have a role to play in the reduction of anxiety symptoms in emerging adults, that is, if the current results are indicative of a causal relationship. Although these findings also need to be replicated in a clinical sample, they may help inform future programs for anxiety in emerging adults. The findings suggest that parents, especially fathers, should encourage their emerging adult offspring to have confidence in their beliefs and opinions, and to demonstrate leadership and independence. Equally, parent punishment or anger over small offences may be detrimental to offspring well-being. Whilst parenting is only one of numerous important contributors to a child's transition to the external world, the findings of the present study provide a promising indication that paternal encouragement of social assertiveness and personal fulfilment may be protective against emerging adult social anxiety.

Compliance with Ethical Standards

Conflict of Interest Anna Smout, Rebecca S. Lazarus, and Jennifer L. Hudson declare that they have no conflict of interest.

Informed Consent All procedures followed were in accordance with the ethical standards of the Macquarie University Human Ethics Committee. Informed consent was obtained from all individual subjects participating in the study.

Animal Rights No animal studies were carried out by the authors for this article. Sample 2 participants were invited to complete an online questionnaire of approximately 30 min duration. After providing informed consent, participants provided demographic information and completed the parenting scales (CPBQ-EA, s-EMBU) separately for each parent, and the anxiety scales (DASS-21, SIAS) via the online survey platform, Qualtrics. Branched logic was applied to the questionnaire, whereby if participants indicated that their family composition included two mothers, they received two mother versions of each parenting scale. If they indicated a single parent household, they only completed one of each parenting measure. Participants from the psychology participant pool were reimbursed with course credit for their time, and external participants were reimbursed by going in the draw to win 1 of 3 \$50 gift vouchers.

Appendix 1: DRAFT CPBQ-EA Questionnaire Items

1. My mother/father plays jokes on me*.
2. My mother/father encourages me to speak my mind and back myself.
3. My mother/father encourages me not to take myself too seriously.
4. My mother/father teases me playfully. For example, reminding me of silly things I used to do as a child*.
5. My mother/father promotes the importance of being socially assertive and standing up for myself*.
6. If I'm playing sport with my mother/father, they try to win*.
7. When I find something challenging, my mother/father encourages me to persevere and face my fears. For example, speaking in public or moving to another city.
8. My mother/father will jokingly push me into the pool or trip me up*.
9. My mother/father encourages me to do my best.
10. My parent challenges me by engaging in intellectual conversation.
11. My mother/father provides me with more guidance and direction than I believe I need.
12. My mother/father encourages me to undertake new things, such as going on holidays alone or having a part time job*.
13. My mother/father challenges my opinions about people, social issues and political views.
14. My mother/father almost never plays boisterously (lively/excitedly) with me*.
15. My mother/father encourages me to undertake hobbies or activities where I will meet new people*.
16. My mother/father makes my appointments for me, such as a dental check-up.
17. My mother/father encourages me to take initiative in social contexts. For example, organise a party*.
18. My mother/father encourages me to stick up for myself if others try to take advantage of me*.
19. My mother/father tries to beat me at sports.
20. My mother/father encourages me to stand up for my opinion and beliefs*.
21. My mother/father reminds me not to be too sensitive.
22. My mother/father encourages acts of leadership and independence, such as stepping up in the workplace.
23. My mother/father encourages me to say no to my friends if I don't want something, such as a drink*.
24. My mother/father encourages me to be independent and self-sufficient, for example, financially.
25. My mother/father encourages me to talk to new people and pursue new interests.
26. My mother/father challenges me to competitive games like cards, soccer or running race.
27. My mother/father encourages me to excel*.
28. If I'm playing a game with my mother/father, they let me win*.
29. My mother/father tells me to be my own person.
30. My mother/father encourages me to try new things, such as travelling alone or considering a new career.
31. My mother/father takes it upon himself/herself to find opportunities for me.
32. My mother/father makes it clear to me that it's important to 'fit in' with my friends*.
33. My mother/father would never pull a funny prank on me.

- 34. My mother/father challenges me to physical contests (for example play fighting, running, tennis, arm wrestling)*.
- 35. My mother/father encourages me to keep active, healthy and fit.
- 36. I play rough contact sports with my mother/father.

* = item retained from adolescent version.
 Items 11, 14, 16, 28, 31, 32, 33 are reverse coded.

Appendix 2: Final CPBQ-EA Item List

Challenging Parenting Behaviour Questionnaire—Emerging Adults (Father Version)

The statements below concern how your father interacts with you. Please circle a number to indicate the degree to which each statement applies to you. If you do not know precisely, circle the number that you think comes the closest. Please respond to all the statements.

1	2	3	4	5
Not applicable	Somewhat applicable	Sometimes applicable and sometimes not applicable	Usually applicable	Completely applicable

- 1. My father encourages me to speak my mind and back myself.
- 2. My father promotes the importance of being socially assertive and standing up for myself.
- 3. If I'm playing sport with my father, he tries to win.
- 4. My father encourages me to do my best.
- 5. My father challenges me by engaging in intellectual conversation.
- 6. My father encourages me to undertake new things, such as going on holiday alone or having a part time job.
- 7. My father encourages me to undertake hobbies or activities where I will meet new people.
- 8. My father encourages me to take initiative in social contexts. For example, organising a party.
- 9. My father encourages me to stick up for myself if others try to take advantage of me.
- 10. My father tries to beat me at sports.
- 11. My father encourages me to stand up for my opinion and beliefs.
- 12. My father encourages acts of leadership and independence, such as stepping up in the workplace.

- 13. My father encourages me to talk to new people and pursue new interests.
- 14. My father challenges me to competitive games like cards, soccer or running races.
- 15. My father encourages me to excel.
- 16. My father tells me to be my own person.
- 17. My father encourages me to try new things, such as travelling alone or considering a new career.
- 18. My father challenges me to physical contests (for example play fighting, running, tennis, arm wrestling).
- 19. My father encourages me to keep active, healthy and fit.
- 20. I play rough contact sports with my father.

Scoring:
 Social subscale items: 1, 2, 4, 5, 9, 11, 12, 15, 16, 19.
 Competition subscale items: 3, 10, 14, 18, 20.
 Novelty subscale items: 6, 7, 8, 13, 17.

Scores are summed separately for each subscale, with higher scores denoting more challenging parenting in that domain.

Challenging Parenting Behaviour Questionnaire—Emerging Adults (Mother Version)

The statements below concern how your mother interacts with you. Please circle a number to indicate the degree to which each statement applies to you. If you do not know precisely, circle the number that you think comes the closest. Please respond to all the statements.

1	2	3	4	5
Not applicable	Somewhat applicable	Sometimes applicable and sometimes not applicable	Usually applicable	Completely applicable

- 1. My mother encourages me to speak my mind and back myself.
- 2. My mother promotes the importance of being socially assertive and standing up for myself.
- 3. If I'm playing sport with my mother, she tries to win.
- 4. My mother encourages me to do my best.
- 5. My mother challenges me by engaging in intellectual conversation.
- 6. My mother encourages me to undertake new things, such as going on holiday alone or having a part time job.
- 7. My mother encourages me to undertake hobbies or activities where I will meet new people.

8. My mother encourages me to take initiative in social contexts. For example, organising a party.
9. My mother encourages me to stick up for myself if others try to take advantage of me.
10. My mother tries to beat me at sports.
11. My mother encourages me to stand up for my opinion and beliefs.
12. My mother encourages acts of leadership and independence, such as stepping up in the workplace.
13. My mother encourages me to talk to new people and pursue new interests.
14. My mother challenges me to competitive games like cards, soccer or running races.
15. My mother encourages me to excel.
16. My mother tells me to be my own person.
17. My mother encourages me to try new things, such as travelling alone or considering a new career.
18. My mother challenges me to physical contests (for example play fighting, running, tennis, arm wrestling).
19. My mother encourages me to keep active, healthy and fit.
20. I play rough contact sports with my mother.

Scoring:

Social subscale items: 1, 2, 4, 5, 9, 11, 12, 15, 16, 19.

Competition subscale items: 3, 10, 14, 18, 20.

Novelty subscale items: 6, 7, 8, 13, 17.

Scores are summed separately for each subscale, with higher scores denoting more challenging parenting in that domain.

References

- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*, 469–480. <https://doi.org/10.1037/0003-066x.55.5.469>.
- Arrindell, W. A., Akkerman, A., Bagés, N., Feldman, L., Caballo, V. E., Oei, T. P. S., et al. (2005). The short-EMBU in Australia, Spain, and Venezuela. *European Journal of Psychological Assessment*, *21*, 56–66. <https://doi.org/10.1027/1015-5759.21.1.56>.
- Arrindell, W. A., Emmelkamp, P. M. G., Monsma, A., & Brillman, E. (1983). The role of perceived parental rearing practices in the aetiology of phobic disorders: A controlled study. *British Journal of Psychiatry*, *143*, 183–187. <https://doi.org/10.1192/bjp.143.2.183>.
- Arrindell, W. A., Sanavio, E., Aguilar, G., Sica, C., Hatzichristou, C., Eisemann, M., et al. (1999). The development of a short form of the EMBU: Its appraisal with students in Greece, Guatemala, Hungary and Italy. *Personality and Individual Differences*, *27*, 613–628. [https://doi.org/10.1016/S0191-8869\(98\)00192-5](https://doi.org/10.1016/S0191-8869(98)00192-5).
- Bögels, S. M., & Brechman-Toussaint, M. L. (2006). Family issues in child anxiety: Attachment, family functioning, parental rearing and beliefs. *Clinical Psychology Review*, *26*, 834–856. <https://doi.org/10.1016/j.cpr.2005.08.001>.
- 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*, 171–181. <https://doi.org/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*, 539–558. <https://doi.org/10.1016/j.cpr.2007.07.011>.
- Bögels, S. M., Stevens, J., & Majdandžić, M. (2011). Parenting and social anxiety: Fathers' versus mothers' influence on their children's anxiety in ambiguous social situations. *Journal of Child Psychology and Psychiatry*, *52*, 599–606. <https://doi.org/10.1111/j.1469-7610.2010.02345.x>.
- Brown, T. A., Chorpita, B. F., Korotitsch, W., & Barlow, D. H. (1997). Psychometric properties of the depression anxiety stress scales (DASS) in clinical samples. *Behaviour Research and Therapy*, *35*, 79–89. [https://doi.org/10.1016/S0005-7967\(96\)00068-X](https://doi.org/10.1016/S0005-7967(96)00068-X).
- Brown, A. M., & Whiteside, S. P. (2008). Relations among perceived parental rearing behaviors, attachment style, and worry in anxious children. *Journal of Anxiety Disorders*, *22*, 263–272. <https://doi.org/10.1016/j.janxdis.2007.02.002>.
- Cartwright-Hatton, S., McNicol, K., & Doubleday, E. (2006). Anxiety in a neglected population: Prevalence of anxiety disorders in pre-adolescent children. *Clinical Psychology Review*, *26*, 817–833. <https://doi.org/10.1016/j.cpr.2005.12.002>.
- Clark, K. E., & Ladd, G. W. (2000). Connectedness and autonomy support in parent-child relationships: Links to children's socioemotional orientation and peer relationships. *Developmental Psychology*, *36*, 485–498. <https://doi.org/10.1037/0012-1649.36.4.485>.
- Costello, E. J., Egger, H. L., Copeland, W., Erkanli, A., & Angold, A. (2011). The developmental epidemiology of anxiety disorders: Phenomenology, prevalence and comorbidity. In W. K. Silverman & A. P. Field (Eds.), *Anxiety disorders in children and adolescents* (2nd ed., pp. 56–75). New York: Cambridge University Press.
- Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation*, *10*, 1–9.
- de Wilde, A., & Rapee, R. M. (2008). Do controlling maternal behaviours increase state anxiety in children's responses to a social threat? A pilot study. *Journal of Behaviour Therapy and Experimental Psychiatry*, *39*, 526–537. <https://doi.org/10.1016/j.jbtep.2007.10.011>.
- Field, A. (2013a). *The beast of bias discovering statistics using IBM SPSS statistics* (4th ed., pp. 163–212). London, UK: SAGE Publications Ltd.
- Field, A. (2013b). *Regression discovering statistics using IBM SPSS statistics* (4th ed., pp. 293–356). London, UK: SAGE Publications Ltd.
- Fulton, E., & Turner, L. A. (2008). Students' academic motivation: Relations with parental warmth, autonomy granting, and supervision. *Educational Psychology*, *28*, 521–534. <https://doi.org/10.1080/01443410701846119>.
- Gruner, K., Muris, P., & Merckelbach, H. (1999). The relationship between anxious rearing behaviours and anxiety disorders symptomatology in normal children. *Journal of Behaviour Therapy and Experimental Psychiatry*, *30*, 27–35. [https://doi.org/10.1016/S0005-7916\(99\)00004-X](https://doi.org/10.1016/S0005-7916(99)00004-X).
- Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, *30*, 179–185. <https://doi.org/10.1007/BF02289447>.
- Hudson, J. L., Dodd, H. F., & Bovoopoulos, N. (2011). Temperament, family environment and anxiety in preschool children. *Journal of Abnormal Child Psychology*, *39*, 939–951. <https://doi.org/10.1007/s10802-011-9502-x>.
- Hudson, J. L., & Rapee, R. M. (2001). Parent-child interactions and anxiety disorders: An observational study. *Behaviour Research*

- and Therapy, 39, 1411–1427. [https://doi.org/10.1016/S0005-7967\(00\)00107-8](https://doi.org/10.1016/S0005-7967(00)00107-8).
- Kaiser, H. F., & Rice, J. (1974). Little Jiffy, Mark IV. *Educational and Psychological Measurement*, 34, 111–117. <https://doi.org/10.1177/001316447403400115>.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey replication. *Archives of General Psychiatry*, 62, 593–602. <https://doi.org/10.1001/archpsyc.62.6.593>.
- Lazarus, R. S., Dodd, H. F., Majdandžić, M., de Vente, W., Morris, T., Byrow, Y., et al. (2016). The relationship between challenging parenting behaviour and childhood anxiety disorders. *Journal of Affective Disorders*, 190, 784–791. <https://doi.org/10.1016/j.jad.2015.11.032>.
- Lazarus, R. S., McLellan, L. F., & Hudson, J. L. (2018). Recalled challenging parenting behaviour and anxiety in emerging adulthood: A retrospective cohort study. *Journal of Child and Family Studies*. <https://doi.org/10.1007/s10826-017-0919-x>.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy*, 33, 335–343. [https://doi.org/10.1016/0005-7967\(94\)00075-U](https://doi.org/10.1016/0005-7967(94)00075-U).
- 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, 423–452. <https://doi.org/10.1111/infa.12125>.
- Majdandžić, M., Moller, E. L., de Vente, W., Bögels, S., & van den Boom, D. C. (2010). *The challenging parenting behaviour questionnaire. Age version: CPBQ12-18*. Amsterdam: Research Institute of Child Development and Education, University of Amsterdam.
- Majdandžić, M., Moller, 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. <https://doi.org/10.1007/s10802-013-9774-4>.
- Markus, M., Lindhout, I. E., Boer, F., Hoogendijk, T., & Arrindell, W. (2003). Factors of perceived parental rearing styles: The EMBU-C examined in a sample of Dutch primary school children. *Personality and Individual Differences*, 34, 503–519. [https://doi.org/10.1016/S0191-8869\(02\)00090-9](https://doi.org/10.1016/S0191-8869(02)00090-9).
- Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy*, 36, 455–470. [https://doi.org/10.1016/S0005-7967\(97\)10031-6](https://doi.org/10.1016/S0005-7967(97)10031-6).
- McLeod, B. D., Weisz, J. R., & Wood, J. J. (2007a). Examining the association between parenting and childhood depression: A meta-analysis. *Clinical Psychology Review*, 27(8), 986–1003.
- McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007b). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review*, 27, 155–172. <https://doi.org/10.1016/j.cpr.2006.09.002>.
- 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. <https://doi.org/10.1007/s10826-014-0065-7>.
- Muris, P., & Merckelbach, H. (1998). Perceived parental rearing behavior and anxiety disorders symptoms in normal children. *Personality and Individual Differences*, 25, 1199–1206. [https://doi.org/10.1016/S0191-8869\(98\)00153-6](https://doi.org/10.1016/S0191-8869(98)00153-6).
- Osman, A., Wong, J. L., Bagge, C. L., Freedenthal, S., Gutierrez, P. M., & Lozano, G. (2012). The depression anxiety stress scales-21 (DASS-21): Further examination of dimensions, scale reliability, and correlates. *Journal of Clinical Psychology*, 68(12), 1322–1338. <https://doi.org/10.1002/jclp.21908>.
- Peters, L. (2000). Discriminant validity of the social phobia and anxiety inventory (SPAI), the social phobia scale (SPS) and the social interaction anxiety scale (SIAS). *Behaviour Research and Therapy*, 38, 943–950. [https://doi.org/10.1016/S0005-7967\(99\)00131-X](https://doi.org/10.1016/S0005-7967(99)00131-X).
- Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review*, 17, 47–67. [https://doi.org/10.1016/S0272-7358\(96\)00040-2](https://doi.org/10.1016/S0272-7358(96)00040-2).
- 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, 311–341. <https://doi.org/10.1146/annurev.clinpsy.032408.153628>.
- Rapee, R. M., & Spence, S. H. (2004). The etiology of social phobia: Empirical evidence and an initial model. *Clinical Psychology Review*, 24, 737–767. <https://doi.org/10.1016/j.cpr.2004.06.004>.
- Raudino, A., Murray, L., Turner, C., Tsampala, E., Lis, A., De Pascalis, L., et al. (2013). Child anxiety and parenting in England and Italy: The moderating role of maternal warmth. *Journal of Child Psychology and Psychiatry*, 54, 1318–1326. <https://doi.org/10.1111/jcpp.12105>.
- Smout, A., Hudson, J. L., & Lazarus, R. S. (2016). *The challenging parenting behaviour questionnaire: Emerging adult version*. North Ryde: Department of Psychology, Macquarie University.
- Spence, S. H., & Rapee, R. M. (2016). The etiology of social anxiety disorder: An evidence-based model. *Behaviour Research and Therapy*, 86, 50–67. <https://doi.org/10.1016/j.brat.2016.06.007>.
- Tabachnick, B. G., & Fidell, L. S. (2013a). *Multiple regression using multivariate statistics* (6th ed., pp. 117–196). New Jersey: Pearson Education Inc.
- Tabachnick, B. G., & Fidell, L. S. (2013b). *Principal components and factor analysis using multivariate statistics* (6th ed., pp. 612–680). New Jersey: Pearson Education Inc.
- Verhoeven, M., Bögels, S. M., & van der Bruggen, C. C. (2012). Unique roles of mothering and fathering in child anxiety: Moderation by child's age and gender. *Journal of Child and Family Studies*, 21, 331–343. <https://doi.org/10.1007/s10826-011-9483-y>.
- Wood, J. J., McLeod, B. D., Sigman, M., Hwang, W., & Chu, B. C. (2003). Parenting and childhood anxiety: Theory, empirical findings, and future directions. *Journal of Child Psychology and Psychiatry*, 44, 134–151. <https://doi.org/10.1111/1469-7610.00106>.
- Yap, M. B., & Jorm, A. F. (2015). Parental factors associated with childhood anxiety, depression, and internalizing problems: A systematic review and meta-analysis. *Journal of Affective Disorders*, 175, 424–440. <https://doi.org/10.1016/j.jad.2015.01.050>.
- Yap, M. B., Pilkington, P. D., Ryan, S. M., & Jorm, A. F. (2014). Parental factors associated with depression and anxiety in young people: A systematic review and meta-analysis. *Journal of Affective Disorders*, 156, 8–23. <https://doi.org/10.1016/j.jad.2013.11.007>.
- Zakeri, H., Jowkar, B., & Razmjooe, M. (2010). Parenting styles and resilience. *Procedia Social and Behavioral Sciences*, 5, 1067–1070. <https://doi.org/10.1016/j.sbspro.2010.07.236>.

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