

# Parenting by anxious mothers: effects of disorder subtype, context and child characteristics

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**Background:** There has been increasing research interest in parenting by anxious adults; however, little is known about anxiety-subtype effects, or effects of the context in which parenting is assessed. **Methods:** Two groups of anxious mothers, social phobia ( $N = 50$ ), generalised anxiety disorder ( $N = 38$ ), and nonanxious controls ( $N = 62$ ) were assessed with their 4.9-year-old children in three tasks: two presented threat specifically relevant to each maternal disorder, namely, a social threat task where the child had to give a speech, and a nonsocial threat task where the child had to explore potentially scary objects; the third was a nonthreat task (playing with play dough). Seven parenting dimensions were scored. Effects on parenting of maternal anxiety subgroup and task, and their interactions, were examined, as were effects of earlier child behavioural inhibition and currently manifest anxiety. **Results:** There were no parenting differences between maternal groups in the nonthreat play-dough task; parenting difficulties in the two anxious groups were principally evident in the disorder-specific challenge. Parenting differences between nonanxious and anxious mothers occurred independently of child characteristics. There was little evidence for particular forms of parenting difficulty being unique to maternal disorder. **Conclusions:** Anxious mothers' parenting difficulties emerge when occurring under challenge, especially when this is disorder-specific. These effects should be considered in research and clinical practice. **Keywords:** Anxiety, social phobia, generalised anxiety disorder, parenting, mother–child interactions, behavioural inhibition, specificity, task effects.

## Introduction

Anxiety disorders in adults occur in over a quarter of the general population, and are disabling (Kessler et al., 2005). The extent to which these disorders impinge on parental functioning has attracted increasing research interest. Some evidence has emerged for anxious parents showing more transfer of information concerning threat (Moore, Whaley, & Sigman, 2004) and modelling of anxious responses, when interacting with their children (Murray, Cooper, Creswell, Schofield, & Sack, 2007; Murray et al., 2008). Other parenting dimensions, however, while associated with *child* anxiety, have not been so consistently found to accompany *parental* disorder: thus, a recent meta-analysis found no overall effect of anxiety on parental control (van der Bruggen, Stams, & Bogels, 2008); and results have similarly been largely negative with respect to the association between parental anxiety and negative or rejecting behaviour (e.g. Gar & Hudson, 2008; Ginsburg, Grover, Cord, & Ialongo, 2006; Moore et al., 2004; Turner, Beidel, Roberson-Nay, & Tervo, 2003; Woodruff-Borden, Morrow, Boursland, & Cambron, 2002).

When considering these somewhat inconsistent, and often negative, findings, it is important to note that a number of methodological features of previous research could potentially have obscured genuine associations between parental anxiety and parenting difficulties. First, there has been some variability in the precise definitions of parenting dimensions (McLeod, Wood, & Weisz, 2007; van der Bruggen et al., 2008). For example, the general construct of 'control' has included lack of autonomy granting (e.g. Moore et al., 2004), intrusiveness (Feldman, Greenbaum, Mayes, & Erlich, 1997), overinvolvement (Hudson & Rapee, 2002), as well as overcontrol itself (e.g. Woodruff-Borden et al., 2002). Notably, once such behaviours are disaggregated, findings are more coherent, and stronger associations emerge; thus, in contrast to the overall negative findings for 'control', the more specific behaviour of lack of autonomy-granting emerges as reliably associated with parental anxiety (van der Bruggen et al., 2008).

A further feature of previous research that may have contributed to previous inconsistent and/or negative findings is the fact that the anxious parents concerned have generally not been distinguished in terms of subtype of anxiety. While this strategy is likely a function of comorbidity of anxiety disorders in the general population (Brawman-Mintzer et al., 1992), a possible consequence is that the

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composition of different study populations might have varied, thereby limiting their comparability; further, this strategy may have failed to identify any parenting difficulties that are specific to particular subtypes of disorder.

A related methodological issue concerns the contexts in which assessments are made. Thus, it is possible that any parenting problems associated with particular subtypes of parental anxiety disorder are elicited principally, or even only, in disorder-salient situations. To date, such context-specific effects have been largely unexplored. Indeed, just as different parental anxiety disorders have tended to be pooled together in research on parenting, so the conditions for assessing parent-child relationships have often been rather general, typically involving parent and child being presented with some non-specific challenge (e.g. unsolvable puzzles, conflict conversations, risk-room assessments), thereby potentially limiting the identification of parental difficulties that might obtain only in particular challenging contexts.

The importance of taking into account subtypes of anxiety disorder, and of assessments being conducted in specific, disorder-salient, contexts is suggested by our earlier report concerning parenting of 2-month-old infants by mothers with social phobia. These mothers were compared with an anxious comparison group [mothers with generalised anxiety disorder (GAD)] and nonanxious mothers (Murray et al., 2007). Here, in the context of a potential social challenge (a stranger entering the room and engaging with mother and infant), compared to nonanxious controls, those with social phobia showed significant parenting difficulties (increased manifest anxiety and lack of infant autonomy promotion), whereas mothers with GAD showed no such impairment. Furthermore, in a nonstressful context (i.e. playing alone with the infant), mothers in both anxiety disorder groups behaved just as sensitively towards their infants as nonanxious control mothers. These findings indicate, in line with the wider literature, that parenting difficulties are more likely to emerge under conditions of challenge than in nonthreat situations (e.g. Caron, Weiss, Harris, & Catron, 2006; Ginsburg et al., 2006). The contrast between the social phobia and GAD group mothers in the social challenge situation also indicates that the parenting of mothers with different anxiety disorders is differentially responsive to the specific context in which their parenting is observed.

Aside from considering the influence of diagnostic subtype and context on parenting difficulties in anxious individuals, research has also demonstrated the importance of taking child characteristics into account. Among these, behavioural inhibition (BI) has been considered particularly important. This temperamental constellation, based on objective assessments normally made in infancy (Kagan,

Reznick, & Snidman, 1987), is characterised by fearfulness and withdrawal in the face of novelty. Not only has BI been found to raise the risk of child anxiety disorder (e.g. Biederman et al., 2001), but it has also been found to influence parenting, especially in anxious parents, including increased critical maternal behaviour (Hirshfeld, Biederman, Brody, Faraone, & Rosenbaum, 1997) and reduced encouragement, or autonomy promotion (Murray et al., 2008). Notably, similar effects of child anxiety itself on parenting have been noted (Hudson, Doyle, & Gar, 2009; Moore et al., 2004). This is important, as studies have often considered behaviours associated with parental anxiety amongst parents of already-anxious children, thereby potentially confounding effects of the adult disorder with normative parental responses to the presence of high child anxiety.

We examined the parenting by anxious mothers in the current study, taking account of the methodological issues outlined above, in a follow-up of our earlier investigation, when the children were aged 4.9 years. We first addressed the question of *specificity of context* effects, that is, whether mothers with social phobia show parenting difficulties only in *socially* stressful contexts, or whether conditions that are generally stressful (i.e. posing general threat and uncertainty, but not social challenge) might also elicit their parenting vulnerability. Second, we addressed the question of *specificity of maternal disorder-subtype* effects, again including an anxious comparison group (i.e. mothers with GAD, but not social phobia), as well as a nondisorder control group. Our third aim was to determine whether *specific forms* of parenting problem might characterise diagnostic subgroups, independent of any context effects. To this end, following McLeod et al. (2007) and van der Bruggen et al. (2008), we used a relatively detailed coding scheme, disaggregating parenting dimensions sometimes grouped together. Finally, we aimed to assess the contribution of child characteristics to parenting difficulties, focussing in particular on child BI and concurrent anxious behaviour. To avoid bias due to maternal disorder, rather than using maternal reports for these assessments, we made direct observations of each.

Three mother-child interaction conditions were observed: The 'Speech task' was designed to elucidate any *social* anxiety, with the mother being asked to speak on camera herself, as well as support her child in making a speech in front of a stranger. A second condition, 'the Mysterious Box task', was designed to elucidate *general* anxiety, as it included both uncertainty and potential threat (nonsocial), with the mother having to help her child explore potentially 'scary' hidden objects. The third task was designed to be stress-free, with mother and child being given play-dough materials to play with as they liked.

We developed a coding scheme for parenting that was applicable to all three tasks, and that was informed by the wider literature (McLeod et al., 2007; van der Bruggen et al., 2008), and our previous findings (Murray et al., 2007, 2008). Dimensions comprised expressed anxiety (i.e. modelling of anxiety), passivity (or withdrawn behaviour), promotion of child avoidance, overprotection and intrusiveness. We also assessed three potentially protective features of parenting: positive modelling, encouragement/autonomy promotion and warmth.

We hypothesised that parenting difficulties would be expressed principally in contexts of specific salience for the disorder in question, that is, that (a) in the Speech task, compared to controls, mothers with social phobia, but not those with GAD, would show parenting difficulties; (b) in the Mysterious Box task, compared to controls, mothers with GAD, but not those with social phobia, would show parenting difficulties; and (c) in the Play-Dough task, no group differences in parenting would occur. We made no predictions about particular behaviours being represented more in one versus the other anxiety group, although we expected both to differ from the controls on all dimensions.

## Method

### Sample

The sample was first recruited by screening 4,000 women for social phobia and GAD at routine 20-week antenatal clinics [using the Social Interaction and Anxiety Scale (SIAS), the Social Phobia Scale (SPS) and the Penn State Worry Questionnaire (PSWQ; Mattick & Clarke, 1998; Meyer, Miller, Metzger, & Borkovec, 1990)]. Trained clinical researchers then interviewed probable cases ( $N = 304$ ), using the Structured Clinical Interview for DSM-IV Axis 1 disorders (Affective Disorders section; SCID-1; First, Spitzer, Gibbon, & Williams,

1995). Taped interviews were discussed with a senior clinical team to confirm diagnosis. A random sample of probable noncases ( $N = 123$ ) was interviewed to check they had neither social phobia nor GAD, nor any other anxiety disorder, in order to form the control group. (For full details of recruitment, see Murray et al., 2007.) Final recruitment was confirmed after delivery providing the infant was healthy: numbers were: 67 with social phobia (but not GAD); 56 with GAD (but not social phobia); and 94 controls. [Given our aim of examining specific disorder-subtype effects in the current study, and as in our earlier report (Murray et al., 2007), mothers with comorbid social phobia and GAD ( $N = 29$ ) are not considered here.] Mothers and infants were assessed through the first 2 years, and were followed up at child age 4.9 years for the currently reported assessments. Numbers followed up (and percentages of original recruits) were: Social phobia group  $N = 53$  (79.1%); GAD group  $N = 44$  (78.6%); controls  $N = 67$  (71.3%). Mothers were re-interviewed at follow-up. Some no longer met full diagnostic criteria for their disorder at recruitment (32 social phobia group, 28 GAD group); nevertheless, compared to controls, these ‘subclinical’ mothers had significantly more anxiety symptoms on the questionnaires relevant to their original disorder (SPS, SIAS and PSWQ – see Table 1 – all  $ps < .03$ ), and they were therefore retained in the current study according to their recruitment grouping. A few mothers (three in each of the control and social phobia groups) were depressed, but since this did not bear on our study aims, they were retained. Mothers gave written informed consent. Those with complete data for the current assessment were: Social phobia group  $N = 50$ ; GAD group  $N = 38$ ; controls  $N = 62$ . The study was approved by the Berkshire Research Ethics Committee and the University of Reading Ethics and Research Committee.

The three groups did not differ on demographic measures, and nor did current participants differ from those not followed up, apart from on maternal age, where the latter were somewhat younger [mean = 29.45 ( $SD = 4.81$ ) vs. mean = 31.12 ( $SD = 3.99$ ) years, respectively;  $t = 2.28$ ,  $p < .05$ ; see Table 1].

**Table 1** Sample characteristics

	Control ( $N = 62$ )	Social phobia ( $N = 50$ )	GAD ( $N = 38$ )	Statistics
Maternal age (years) mean ( $SD$ )	31.94 (3.67)	31.04 (4.26)	30.76 (3.42)	$F(2, 147) = 1.34$ $p = .26$ , $\eta^2 = .02$
Married/cohabiting (%)	100.0	96.0	97.4	$\chi^2(2) = 2.36$ $p = .31$ , Cramer's $V = .13$
Social class (% middle/upper)	69.5	72.9	62.2	$\chi^2(2) = 1.15$ $p = .56$ , Cramer's $V = .09$
Child sex (% male)	50.0	38.0	44.7	$\chi^2(2) = 1.61$ $p = .45$ , Cramer's $V = .10$
Child age at assessment (years) mean ( $SD$ )	5.01 (0.24) $n = 62$	4.94 (0.34) $n = 32$	4.99 (0.24) $n = 28$	$F(2, 147) = 0.82$ $p = .44$ , $\eta^2 = .01$
PSWQ <sup>a</sup> mean ( $SD$ )	34.45 (10.04)	45.32 (14.83)	53.43 (12.65)	$F(2, 118) = 25.98$ $p < .0001$ , $\eta^2 = .31$
SIAS <sup>a</sup> mean ( $SD$ )	12.68 (6.85)	29.80 (10.07)	18.43 (11.70)	$F(2, 117) = 37.08$ $p < .0001$ , $\eta^2 = .39$
SPS <sup>a</sup> mean ( $SD$ )	6.34 (7.36)	15.10 (8.98)	11.93 (11.11)	$F(2, 117) = 11.20$ $p < .0001$ , $\eta^2 = .16$

PSWQ, Penn State Worry Questionnaire; SIAS, Social Interaction Anxiety Scale; SPS, Social phobia Scale.

<sup>a</sup>Means for index mothers concern those who no longer met diagnostic criteria.

## Procedure

Mothers and children completed assessments in University research rooms. Following a 10-min relaxation period when they watched a video, the three tasks were administered, separated by relaxation periods. The nonstress Play-Dough task was always administered first; the order of the Speech and Mysterious Box Tasks was counterbalanced.

## Mother-child interaction tasks

For the Play-Dough task, mother and child were given four tubs of coloured Dough, and invited to make whatever they liked for 5 min. For the Speech Task, a researcher explained she would like the child to spend 5 min drawing a picture of their family, which the child should then show and describe to an unfamiliar researcher, who would film the child's speech for 3 min. The mother was told she should support her child, as she felt appropriate, during the speech. Following the drawing, the second researcher entered with a video-camera. She asked the child and mother to stand in front of the camera; the mother was first asked to introduce her child and explain, on camera, that he or she would be describing their picture, before sitting to one side, from where she could interact with her child. For the Mysterious Box Task, a researcher brought in a black box, 0.4 m<sup>2</sup>. Each side had an opening into a chamber, the contents being obscured by a cover. Mother and child were told that each chamber contained something 'scary'; the mother was asked to discuss with her child what the box might contain, and to demonstrate and support the child in exploring the contents. Objects were a series of rubbery/furry toy animals. All tasks were videotaped through a one-way mirror.

## Measures

**Maternal parenting behaviour.** Maternal behaviours were rated on 5-point scales, 1 = *none*, 5 = *pervasive/strong*, apart from promotion of avoidance (3 points).

### Negative behaviours.

1. *Expressed anxiety (i.e. modelling of anxiety).* Anxiety in facial expression (e.g. fearful expression, biting lip), body movements (e.g. rigid posture, wringing hands) and speech (rapid, nervous, or inhibited)
2. *Passivity.* Withdrawn and inhibited, unresponsive to child behaviour and communication (e.g. physically distant, silent).
3. *Promotion of avoidance.* Actively encourages/supports child avoidance of task (e.g. saying 'you don't have to if you don't want to').
4. *Overprotection.* Initiates emotional and/or practical support that is not required (stroking/kissing/offering unnecessary help while child manages independently).
5. *Intrusiveness.* Interferes, verbally or physically, cutting across child behaviour, attempts to take over and impose own agenda.

### Positive behaviours.

1. *Positive modelling.* Clearly demonstrates target behaviour (i.e. speaking on camera, manipulating

play dough, handling mysterious box toys) with enthusiasm.

2. *Encouragement (autonomy promotion).* Provides positive motivation to child to engage in the task, showing enthusiasm regarding both task and child capacity/efforts.
3. *Warmth.* Affectionate, expresses positive regard for child, both verbally and physically.

### Child behaviours.

1. *Fourteen-Month Child BI.* This was assessed using the paradigm of Kagan et al. (1987), where latencies to approach, and fearful or distressed behaviours towards novel nonsocial and social stimuli, are assessed. Seven observation frames were scored for responses to: a mechanical dinosaur (three 1-min observations); novel toys in an unfamiliar playroom (one 3-min observation): an approach by a female stranger (three observations – approach, pick-up and play phases). BI was scored as present or absent in each. As in other research, we converted the aggregated score (0–7) into a binary variable (> 3) defining the 27.5% most inhibited infants (Biederman et al., 2001).
2. *Concurrent manifest child anxiety.* This was scored on a 5-point scale (1 = *absent*, 5 = *pervasive/strong*) on the basis of facial expression (e.g. fearful expression, biting lip), body movements (e.g. rigid posture, wringing hands, touching face), and speech quality (e.g. tense, or inhibited, quiet) and content (e.g. mention of being scared) during each of the three tasks.

Videotapes of mother and child behaviour were scored by trained coders, blind to maternal group. To ensure dimensions were scored similarly across tasks, each coder scored videotapes from at least two, though for different participants (to avoid contamination). Different coders scored maternal and child behaviour. For each coder, in each task, a second coder independently scored a random sample of 25 videotapes. Interclass correlations showed good agreement: Maternal Expressed anxiety mean = .82 (range .76–.98 across tasks); Passivity mean = .87 (range .82–.91). Promotion of avoidance mean = .75 (range .64–.85); Overprotection mean = .79 (range .60–.97); Intrusiveness mean = .84 (range .82–.87); Positive modelling mean = .79 (range .68–.89); Encouragement mean = .83 (range .81–.87); Warmth mean = .87 (range .84–.93); Child Expressed anxiety mean = .85 (range .83–.87). For infant BI, videotapes were scored by two trained researchers, blind to group. Twenty tapes were independently scored. Kappas were, for the continuous measure, .85, and for the categorical measure, 1.0.

## Results

### Data reduction and analytic strategy

Before proceeding with the main analyses, we checked whether variables could be eliminated or reduced, either due to low frequency, or because, unless theoretically inappropriate, their intercorrelations indicated their combination.

**Table 2** Pearson's correlations for parenting variables

	Speech	Mysterious Box	Play Dough
<b>Warmth</b>			
Encouragement	.69***	.77***	.64***
Avoidance promotion	-.12	-.08	
Intrusiveness	.02	-.54***	
Modelling of anxiety	-.33***	-.16*	
Passivity	-.78***	-.34***	
Positive modelling	–	.27**	.29**
<b>Encouragement</b>			
Avoidance promotion	-.27**	-.24**	
Intrusiveness	.18*	-.21*	
Modelling of anxiety	-.18*	-.21**	
Passivity	-.74***	-.58***	
Positive modelling	–	.40***	.39***
<b>Avoidance promotion</b>			
Intrusiveness	-.14	.01	
Modelling of anxiety	.20*	.21*	
Passivity	.14	.08	
Positive modelling	–	-.07	
<b>Intrusiveness</b>			
Modelling of anxiety	-.08	.09	
Passivity	-.22**	-.01	
Positive modelling	–	-.01	
<b>Modelling of anxiety</b>			
Passivity	.31***	.08	
Positive modelling	-.34***	-.24**	
<b>Passivity</b>			
Positive modelling	-.30***	-.25**	

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Overprotection was rarely expressed (10.2% mothers across tasks) and was excluded. Inter-correlations between parenting dimensions in the three tasks are shown in Table 2. In general, a high correlation between two dimensions in one task did not mean that they were correlated highly in another. An exception was the relationship between warmth and encouragement, which correlated at least .64 within each task. While, statistically, a case could be made for combining these dimensions, theoretically, there has been interest in their distinctive roles, and we therefore examined them separately.

### Main analyses

We initially examined task-order and child sex effects on maternal behaviour and, whenever significant, used them as covariates in subsequent analyses. Then, for each maternal behaviour, repeated measures analysis of variances, followed by post hoc tests, were used to investigate effects of task, maternal group and, of central importance, the interaction between task and maternal group. Finally, we conducted multivariate analysis of covariances to investigate whether maternal group effects remained once we controlled for earlier child BI and concurrently expressed child anxiety. (As few mothers were depressed, this variable was not considered in analyses.)

### Task-order effects and sex effects

Order effects were observed for encouragement and positive modelling. For encouragement, while there was no main effect of order [ $F(3, 146) = 1.99$ ,  $p = .11$ ], participants were more encouraging in the Mysterious Box task if it followed the Speech task [ $M = 3.23$  ( $SD = 0.81$ ) vs.  $M = 2.88$  ( $SD = 0.66$ ),  $F(1, 148) = 5.30$ ,  $p = .02$ ]. For positive modelling, a main effect of order obtained [ $F(3, 146) = 2.73$ ,  $p = .05$ ], with levels being higher in the Speech task if this preceded the Mysterious Box task [ $M = 3.70$  (1.13) vs.  $M = 3.10$  (1.03),  $F(1, 148) = 6.54$ ,  $p = .01$ ].

Significant sex effects were observed only in the Mysterious Box task, where mothers of girls were more likely to show promotion of avoidance [ $F(1, 148) = 4.14$ ,  $p = .04$ ] and passivity [ $F(1, 148) = 4.69$ ,  $p = .03$ ].

### Effects of task on parenting

Table 3 shows means for each parenting dimension according to task. For the nonstress Play-Dough task, signs of anxiety, passivity, promotion of avoidance and intrusiveness were virtually absent (each occurring in fewer than 10% mothers). For these dimensions, therefore, we analysed maternal behaviour across only the two remaining tasks. Results showed significant task effects on four parenting dimensions: thus, compared to the Speech task, the Mysterious Box was associated with more intrusiveness. For encouragement, warmth and positive modelling, which were sufficiently common to permit comparison across the three tasks, mothers showed less encouragement in the Play Dough than in the other conditions; they were warmer and provided more positive modelling in the Speech task than in the other two conditions; and they showed more positive modelling in the Play Dough than in the Mysterious Box task.

### Effects of maternal group on parenting

Significant effects of maternal group were found on a number of parenting dimensions, namely, encouragement, passivity and expressed anxiety, and there was a tendency for warmth to be similarly affected (see Table 4, column 6). Post hoc tests showed that, for all these behaviours, compared to the control group, mothers with social phobia showed significantly more impaired parenting. A similar profile emerged for mothers with GAD for encouragement and passivity, but the difference from controls on warmth just failed to reach significance ( $p = .06$ ). Expressed anxiety was, therefore, the one behaviour where mothers with social phobia showed impairment and mothers with GAD did not, and where the overall difference between the two index groups was significant. There were no main effects of maternal group on intrusiveness, promotion of avoidance or positive modelling.

**Table 3** Parenting dimensions in the Play-Dough, Speech and Mysterious Box tasks

	<i>M (SD)</i>			Task effect
	Play Dough	Speech	Mysterious Box	
Encouragement	2.83 <sup>a</sup> (0.44)	3.27 <sup>b</sup> (0.76)	3.16 <sup>bc</sup> (0.79)	$F(2, 292) = 4.71$ $p = .01, \eta^2 = .03$
Warmth	3.25 <sup>a</sup> (0.75)	3.64 <sup>b</sup> (0.68)	3.37 <sup>ac</sup> (0.89)	$F(2, 294) = 14.18$ $p < .001, \eta^2 = .09$
Anxiety	–	1.83 (0.91)	1.79 (0.65)	$F(1, 147) = 0.35$ $p = .56, \eta^2 = .002$
Passivity	–	1.62 (0.85)	1.34 (0.57)	$F(1, 148) = 2.57$ $p = .11, \eta^2 = .02$
Promotion of avoidance	–	1.17 (0.37)	1.39 (0.48)	$F(1, 148) = 0.27$ $p = .60, \eta^2 = .002$
Intrusiveness	–	1.58 (0.74)	1.97 (0.92)	$F(1, 147) = 16.53$ $p < .001, \eta^2 = .10$
Positive modelling	2.99 <sup>a</sup> (0.78)	3.59 <sup>b</sup> (1.14)	2.80 <sup>c</sup> (1.02)	$F(2, 296) = 7.50$ $p = .001, \eta^2 = .05$

Superscript letters refer to pairwise comparisons. Means with differing regular superscripts within rows are significantly different at  $p < .001$ , except the difference between Play Dough and Mysterious Box on positive modelling, which is significant at  $p < .05$ . Task order was a covariate for Encouragement and Positive modelling. Sex was a covariate for Passivity and Promotion of avoidance.

**Table 4** Parenting dimensions in the Play-Dough, Speech and Mysterious Box tasks by maternal group, and task by group interactions

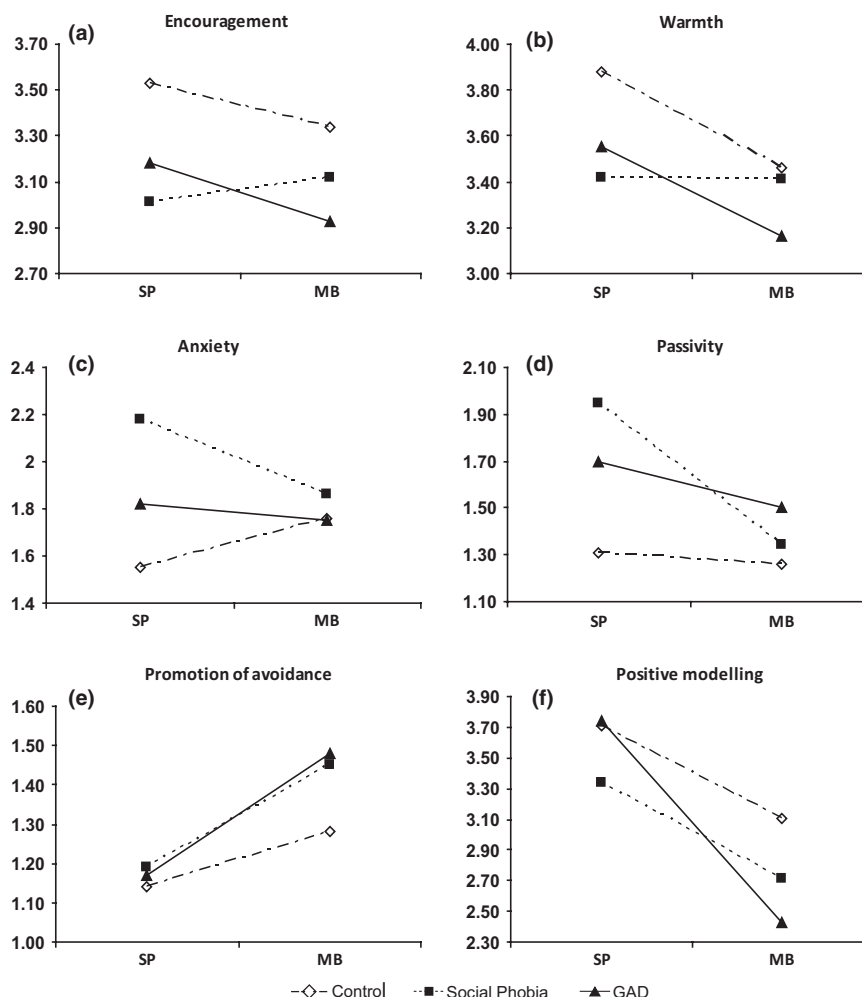
Dimension	Task	<i>M (SD)</i>			Group effect	Group × Task Effect
		Control ( $N = 62$ )	SP ( $N = 50$ )	GAD ( $N = 38$ )		
Encouragement	PD	2.80 (0.45)	2.81 (0.43)	2.89 (0.45)	$F(2, 146) = 3.74$ $p = .03, \eta^2 = .05$	$F(4, 292) = 4.47$ $p = .002, \eta^2 = .06$
	SP	3.53 (0.73) <sup>a</sup>	3.01 (0.76) <sup>b</sup>	3.18 (0.71) <sup>bc</sup>		
	MB	3.34 (0.83) <sup>a</sup>	3.12 (0.73) <sup>ab</sup>	2.93 (0.75) <sup>bc</sup>		
	Overall	3.21 (0.47) <sup>a</sup>	2.99 (0.45) <sup>b</sup>	3.00 (0.47) <sup>bc</sup>		
Warmth	PD	3.33 (0.71)	3.15 (0.75)	3.26 (0.81)	$F(2, 147) = 2.71$ $p = .07, \eta^2 = .04$	$F(4, 294) = 2.32$ $p = .06, \eta^2 = .03$
	SP	3.88 (0.59) <sup>a</sup>	3.42 (0.69) <sup>b</sup>	3.55 (0.71) <sup>bc</sup>		
	MB	3.46 (0.84)	3.41 (0.95)	3.16 (0.88)		
	Overall	3.56 (0.53) <sup>a</sup>	3.33 (0.59) <sup>b</sup>	3.33 (0.67) <sup>ab</sup>		
Anxiety	SP	1.55 (0.64) <sup>a</sup>	2.18 (1.10) <sup>b</sup>	1.82 (0.86) <sup>ac</sup>	$F(2, 147) = 7.18$ $p = .001, \eta^2 = .09$	$F(2, 147) = 2.81$ $p = .06, \eta^2 = .04$
	MB	1.76 (0.72)	1.86 (0.66)	1.75 (0.58)		
	Overall	1.65 (0.50) <sup>a</sup>	2.02 (0.53) <sup>b</sup>	1.78 (0.53) <sup>ac</sup>		
Passivity	SP	1.31 (0.61) <sup>a</sup>	1.95 (1.02) <sup>b</sup>	1.70 (0.77) <sup>bc</sup>	$F(2, 146) = 7.91$ $p = .001, \eta^2 = .10$	$F(2, 146) = 5.03$ $p = .008, \eta^2 = .06$
	MB	1.26 (0.54) <sup>a</sup>	1.34 (0.44) <sup>ab</sup>	1.50 (0.74) <sup>bc</sup>		
	Overall	1.29 (0.43) <sup>a</sup>	1.65 (0.54) <sup>b</sup>	1.60 (0.56) <sup>bc</sup>		
Promotion of avoidance	SP	1.14 (0.29)	1.19 (0.44)	1.17 (0.38)	$F(2, 146) = 1.80$ $p = .17, \eta^2 = .02$	$F(2, 146) = 1.38$ $p = .26, \eta^2 = .02$
	MB	1.28 (0.42) <sup>a</sup>	1.45 (0.51) <sup>ab</sup>	1.48 (0.52) <sup>bc</sup>		
	Overall	1.21 (0.28)	1.32 (0.37)	1.32 (0.35)		
Intrusiveness	SP	1.60 (0.77)	1.61 (0.84)	1.48 (0.56)	$F(2, 147) = 1.68$ $p = .19, \eta^2 = .02$	$F(2, 147) = 0.97$ $p = .38, \eta^2 = .01$
	MB	2.15 (0.99)	1.85 (0.80)	1.82 (0.93)		
	Overall	1.88 (0.65)	1.73 (0.63)	1.65 (0.56)		
Positive modelling	PD	2.97 (0.79)	2.90 (0.72)	3.16 (0.83)	$F(2, 146) = 2.19$ $p = .11, \eta^2 = .03$	$F(4, 292) = 2.99$ $p = .02, \eta^2 = .04$
	SP	3.71 (1.01)	3.34 (1.12)	3.74 (1.31)		
	MB	3.10 (1.04) <sup>a</sup>	2.71 (1.05) <sup>ab</sup>	2.43 (0.79) <sup>bc</sup>		
	Overall	3.26 (0.60)	2.98 (0.53)	3.11 (0.66)		

Superscript letters refer to pairwise comparisons. Means with differing regular superscripts within rows are significantly different at  $p < .001$ . Means with differing italic superscripts within rows are significantly different at  $p < .05$ . Task order was a covariate for Facilitation/Encouragement. Sex was a covariate for Passivity and Promotion of avoidance. PD, Play Dough; SP, Speech; MB, Mysterious Box.

### Effects on parenting of maternal group in interaction with task

The results of the main analyses of interest, that is, those examining whether parenting difficulties asso-

ciated with different anxiety disorders occurred only in stressful conditions, and particularly those that were disorder-relevant, are also shown in Table 4. Means for each maternal dimension by group and task are presented, together with task by group interaction



**Figure 1** Group by task (Speech and Mysterious Box) effects on each of parenting dimensions a–f. SP, speech task; MB, Mysterious Box task

effects. For clarity, significant interactions are also illustrated in Figure 1. Notably, despite there being overall effects of maternal anxiety status on a number of parenting dimensions, neither of the two anxious groups differed from the control mothers on any measure in the nonstress Play-Dough task. By contrast, when considering the two stressful tasks, difficulties occurred in each one, and some degree of specificity concerning the relationship between maternal group and task was apparent. Thus, in the social stress Speech task, social phobia group mothers showed the greatest impairment in terms of encouragement, warmth, passivity and expressions of anxiety, in each case differing significantly from the control mothers. For GAD group mothers in the Speech task, while they also differed from the controls on the first three of these dimensions, the difference was not so marked and, in fact, for expressed anxiety, they were comparable to controls and, indeed, evidenced significantly less anxiety than mothers with social phobia. Conversely, in the nonsocial stress Mysterious Box task, parenting was most impaired in mothers with GAD, with the difference from controls being significant for encouragement, passivity, promotion of avoidance and positive modelling. Mothers

with social phobia, by contrast, did not differ significantly from controls on any parenting measure in this nonsocial stress condition.

#### *Effects on parenting of maternal group in interaction with task, controlling for child characteristics*

There were no significant effects of child BI on any parenting dimension. Similarly, there were no significant associations between concurrent expressed child anxiety and parenting in the Speech or the Play-Dough Tasks. Higher child anxiety during the Mysterious Box task was, however, significantly related to more maternal expressed anxiety ( $r = .22$ ,  $p = .006$ ), more promotion of avoidance ( $r = .21$ ,  $p = .01$ ), less warmth ( $r = -.36$ ,  $p < .001$ ) and less facilitation/encouragement ( $r = -.19$ ,  $p = .02$ ) in the same task. Nevertheless, when each of child BI and concurrently expressed child anxiety was controlled for, the effects of maternal group on parenting were barely altered: the only change was that the previously significant effect of group on encouragement in the Mysterious Box task became a trend ( $p = .08$ ) when child BI was considered.

## Discussion

We examined specificity of effects of two common anxiety disorders, social phobia and GAD, on relatively finely differentiated forms of parenting, as well as the effects of the specific observational context in which parenting was observed. Further, in view of the bidirectional nature of parent-child interactions, we took into account objectively assessed child characteristics, measured both prospectively and concurrently.

There were four main findings. First, the different study tasks evoked differences in parenting. Second, and consistent with our main hypothesis, we found the parenting difficulties of the two anxious groups of mothers to be principally evident in the context of specific, disorder-salient, challenge. Third, we found little evidence that particular forms of parenting difficulty were unique to either maternal disorder. Finally, we found differences between nonanxious and anxious mothers to occur independently of child characteristics.

Our finding that parenting difficulties in anxious mothers were evident in the context of some challenge, but not in a nonstress context, is consistent with our earlier findings in this sample (Murray et al., 2007), as well as with results of a previous study of anxious parents (Ginsburg et al., 2006). Notably, our finding that anxious mothers engage well with their young children in nonthreat contexts contrasts with findings for depressed mothers, where parenting disturbances appear pervasive (Murray, Halligan, & Cooper, 2010).

Our current study elaborated on earlier accounts of the role of threat in the anxiety disorders (Moore et al., 2004; Murray et al., 2007) by considering specific forms of threat in relation to different parent anxiety subgroups. Here, we found, in line with our hypotheses, that parenting difficulties associated with each anxiety disorder did not inevitably manifest themselves under conditions of challenge; rather, the nature of the challenge was important. Thus, mothers with social phobia showed difficulties *only* in the Speech task, as opposed to the Mysterious Box task; while for mothers with GAD, parenting problems were principally evident in the Mysterious Box task. To our knowledge, this evidence for parenting difficulties being relatively context-specific in relation to subtypes of anxiety disorder is novel.

We found rather little evidence that particular *forms* of parenting disturbance were unique to anxiety disorder subtype. Thus, compared to nonanxious controls, both mothers with social phobia and those with GAD showed raised rates of passive, withdrawn behaviour, and low encouragement/autonomy promotion and warmth. Further, while manifest anxiety was mainly evident in mothers with social phobia, this effect was borne principally via the socially stressful Speech task. In sum, therefore, it was not that the form of parenting differed by

disorder, but that the context in which parenting difficulties occurred made anxiety subgroup effects apparent.

There has been considerable interest in the extent to which parenting difficulties are driven by child characteristics. Our assessment of earlier inhibited child behaviour and concurrent manifest child anxiety enabled us to address this question, and our results showed that effects of maternal disorder on parenting still obtained once objectively measured child behaviours were taken into account. Nevertheless, consistent with other research (Hirshfeld et al., 1997; Hudson et al., 2009; Moore et al., 2004; Murray et al., 2008), we found manifest child anxiety in the Mysterious Box task to be independently associated with a range of parenting difficulties. The fact that such associations did not occur in the Speech task might reflect the demand for less active maternal involvement with the child in the latter condition (van der Bruggen et al., 2008).

As children of anxious parents are at particular risk for disorder (Mancini, vanAmeringen, Stazmari, Fugere, & Boyle, 1996), our findings are of significant clinical relevance. In particular, they suggest that assessments that are relevant to parental disorder (or disorders in the case of comorbid diagnoses), and that involve high levels of mother-child engagement, be used to best elucidate parenting difficulties that might contribute to the development or maintenance of child anxiety. Such difficulties could then be more effectively therapeutically targeted. Notably, we found significant differences in parenting between our study groups despite the fact that some mothers, while having elevated symptoms, no longer met full diagnostic criteria for disorder by the time of follow-up. Our numbers did not permit reliable examination of the effects of current versus past diagnoses; nevertheless, and in line with the study of Cooper and Eke (1999), which found persistent effects on parenting of remitted anxiety disorder, our findings suggest the potential importance of taking mothers' previous, as well as current, status into account when evaluating parenting difficulties that might be relevant to child disorder.

Our study had a number of strengths. We recruited diagnostically homogeneous anxiety subgroups, and we assessed parenting by direct observation, a method that is particularly sensitive to identifying effects of disorder (McLeod et al., 2007). Furthermore, we used reliable, finely differentiated, measures of parenting, and we took directly observed child characteristics into account. Nevertheless, limitations applied. First, we did not assess maternal cognitions and, to the extent that these drive behavioural difficulties in parenting, their evaluation is important. Furthermore, while research shows the importance of studying directly observed parent-child interactions, such observations are generally limited in scope, and research into wider effects, such as socialisation practices, would be desirable.



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### Key points

- Neglect of disorder-subtype and context might obscure the effects of anxiety disorder on parenting.
- Anxious mothers behave no differently from non-anxious mothers when interacting with their children in non-stress conditions.
- Parenting difficulties of mothers with different anxiety disorders (either social phobia or GAD) emerge principally in the context of disorder-specific challenges.
- Research and clinical assessments of parenting involving direct observations should use disorder-specific challenges to elucidate problems

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