Anxiogenic behaviours and cognitions in parents of anxious children: Effects of a

guided parent-delivered treatment programme.

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Abstract

Parent involvement in treatment programmes for child anxiety disorders aims to change the parental behaviours and cognitions implicated in the development and maintenance of childhood anxiety disorders. However, very few studies have included parental behaviours and cognitions as outcomes, and the methodological shortcomings of those that have, preclude clear conclusions. This study aimed to provide the first comprehensive examination of change in parental behaviours and cognitions after a guided parent-delivered cognitive-behavioural therapy (CBT) programme compared to a waitlist control. The association between change in parental behaviours and cognitions with child treatment outcome was also considered. Eighty-eight children aged 7 to 12 years old with a diagnosed anxiety disorder were randomised to either an 8-week guided parent-delivered CBT programme (n=41) or waitlist control group (n=47). None of the parents met diagnostic criteria for an anxiety disorder. Observational measures of parental behaviours whilst their child completed an anxiety-provoking task were taken before and after the intervention. Parent expectations were also measured of their child's and own response in the laboratory task, as well as for hypothetical situations that were ambiguous for whether or not they presented a threat. The treatment programme was not associated with greater change in parental behaviours compared to the waitlist control. After the treatment programme there was a change in specific parental cognitions, in that parents perceived themselves and their child to have more control in hypothetical threat ambiguous situations. Change in parental behaviour and cognition was not significantly associated with child treatment outcomes. The results suggest that guided parent-delivered CBT can increase parental self-efficacy in the management of child anxiety. However, the absence of any association of treatment with other parental cognitions or behaviours questions the salience of parental change in the treatment of childhood anxiety disorders.

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Chapter 1. Introduction

1.1 Prevalence and impact of childhood anxiety disorders

Anxiety disorders are among the most commonly occurring paediatric psychiatric disorders (Stallard, 2009). The British Child and Mental Health Survey in 1999 identified that 4% of children met diagnostic criteria for an anxiety disorder (Ford, Goodman, & Meltzer, 2003) and lifetime prevalence is estimated at 27%, with early childhood the average age of onset (Kessler et al., 2005). If left untreated, anxiety disorders tend to run a chronic course (Solyom, Ledwidge, & Solyom, 1986) and persist into adulthood (Bernstein, Borchardt, & Perwien, 1996; Kim-Cohen et al., 2003).

Childhood anxiety disorders can impact on cognitive development and school performance (Essau, Conradt, & Petermann, 2000), social functioning and family life (Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001). They are often comorbid with depression during childhood (Dadds & Barrett, 2001) and predictive of other disorders in adulthood such as depression and substance misuse (Kessler et al., 2011) and increased risk of suicide (Bittner et al., 2007). Given how common and damaging childhood anxiety disorders can be, it is important to understand the factors involved in the development and maintenance of anxiety disorders, as well as the most effective ways of treating them.

1.2 Treatment of childhood anxiety disorders

The treatment of choice for adulthood anxiety disorders is Cognitive Behavioural Therapy (CBT) (NICE, 2011). So far there are only NICE guidelines for social anxiety disorder in children, which also recommend CBT (NICE, 2013). A recent Cochrane Review concluded that CBT for childhood anxiety disorders is significantly

more effective that a waitlist control (James, James, Cowdrey, Soler, & Choke, 2013). Although there are other approaches to treating childhood anxiety disorders such as systemic therapy (see Carr (2014) for a review of the efficacy) and psychodynamic therapy (Weisz & Jensen, 2001), research into the efficacy of these alternative therapies is lacking and far behind that for CBT (Palmer, Nascimento, & Fonagy, 2013).

CBT for childhood anxiety disorders typically involves anxiety management skills training incorporating psychoeducation, relaxation techniques and cognitive restructuring, alongside exposure (usually in a graded format) to the feared stimulus or situation. Randomised controlled trials (RCTs) of child-based CBT (CCBT), in which the child is treated with minimal parental involvement, have shown a recovery rate of between 58% (Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington, 2004) and 69% (Hudson, Rapee, et al., 2009) by the end of treatment. Although a sizeable proportion benefit from the treatment, CCBT is clearly not efficacious for all and effects are arguably disappointing given that the remission rate has been reported as high as 35% in children waiting to receive treatment (Cartwright-Hatton et al., 2004). Therefore, there is a need to develop more effective treatments.

Over the past 20 years, there has been a focus on the role that parents can have in the development, maintenance and treatment of childhood anxiety disorders. An important aspect of this is how parents behave and interact with their child (parental behaviours), and their thoughts, assumptions and beliefs about both their child and their own ability to help them (parental cognitions). Increased understanding of these factors in childhood anxiety disorders, alongside modest effect sizes of CCBT, has resulted in several RCTs examining the effectiveness of involving parents in

treatment with their child (family-based CBT; FCBT) or without their child (parent-delivered CBT; PCBT). In order to consider the rationale for parental involvement in treatment programmes for child anxiety disorders, the evidence will be reviewed on how parental behaviours and cognitions are implicated in the development and maintenance of anxiety disorders in children. The efficacy of treatments that target these anxiogenic parental behaviours and cognitions will then be examined.

1.3 Parental influences on the development and maintenance of childhood anxiety disorders

Anxiety disorders tends to run in families (Beidel & Turner, 1997). Up to 80% of parents of children with an anxiety disorder have elevated anxiety symptomatology, and around 60% of parents with an anxiety disorder have children with an anxiety disorder (Ginsburg & Schlossberg, 2002). These familial patterns suggest that anxiety disorders are transmitted in families. A number of processes are likely to be involved in the intergenerational transmission of anxiety disorders. Firstly, there is clear evidence for a genetic link in childhood anxiety disorders. Twin studies indicate that between 30-80% of the variance in child trait anxiety may be accounted for by genetics (e.g. Eley et al., 2003). However, a meta-analysis of 30 behavioural genetic studies showed that environmental factors (shared and non-shared) contributed about 70% of the variance in child anxiety disorders (Eley & Gregory, 2004). It is therefore widely accepted that although there is a genetic component to anxiety disorders, environmental factors play a crucial role (Rapee, 2012).

Another contributing factor is the temperamental traits that may render some children more vulnerable to environmental influences, as argued by the diathesis stress (Zuckerman, 1999) and vulnerability-stress models (Ingram & Luxton, 2005; Nigg, 2006). Child behavioural inhibition (BI) has been consistently shown to be

associated with greater anxiety symptomatology and disorders, which in itself is thought to be as a result of shared genetic, biological and environmental influences (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Recently, Belsky and Pluess (2009) proposed a 'differential susceptibility to environmental influences hypothesis', which postulates that some children may be more susceptible to the influences of both adverse *and* adaptive environmental factors. Childhood anxiety disorders are therefore likely to result from complex gene-environment correlations and interactions.

Given the substantial role of environmental factors in the development of child anxiety disorders, which have the potential to be identified and modified more readily compared to genetic factors (Merikangas & Risch, 2003), research has focused on identifying the specific environmental influences. A particular emphasis has been on the family system, and in particular, parental behaviours and cognitions. Indeed, contemporary models of the development and maintenance of childhood anxiety disorders have proposed that particular cognitive, affective and behavioural features of parent-child interactions maintain child anxiety (e.g. Creswell, Murray, Stacey, & Cooper, 2011; Murray, Creswell, & Cooper, 2009). A number of studies have examined the role of these parental factors in the development of child anxiety disorders, utilising a variety of paradigms and methodologies. These factors will be reviewed in turn here.

1.3.1 Modelling anxious behaviour

Parental modelling of anxiety has been argued to be one way in which anxiety disorders in children may develop (e.g. Fisak & Grills-Taquechel, 2007; Murray et al., 2009; Rapee, 2002). Social Learning Theory postulates that children will observe and model the behaviour, emotions and attitudes of others (Bandura, 1977).

Applying this theory to the development of anxiety disorders, it is proposed that children who observe their parent to respond anxiously towards certain stimuli or situations learn vicariously to respond anxiously themselves (Bandura, 1986; Barlow, 1988). Rachman's (1977) triple-pathways model of anxiety also suggested that fears could be acquired through vicarious learning of modelled stimulus-threat associations. There are several ways in which parents may model anxiety; visual indications (e.g. facial expressions, shaking, hyperventilation), verbal communication of their fear directly to the child or to another or aloud to themselves, or through the use of avoidance as a coping strategy. Children who observe such responses may go onto respond in a similar manner. It is also argued that children who are more susceptible to developing anxiety disorders (e.g. those who have an inhibited temperament) will be particularly vulnerable to vicarious learning (Rapee, 2002).

A review of retrospective questionnaire studies in adults who have a phobia diagnosis found that modelling by others was cited as a key factor in the development of their phobia (Fisak & Grills-Taquechel, 2007). Correlational studies in non-anxious children have also found higher child anxiety to be associated with parent-reported modelling of anxiety (Muris, Steerneman, Merckelbach, & Meesters, 1996) and child-reported parental modelling of anxiety (Gruner, Muris, & Merckelbach, 1999; Muris, Meesters, Merckelbach, & Hulsenbeck, 2000; Ollendick & King, 1991; Roelofs, Meesters, Ter Huurne, Bamelis, & Muris, 2006; van Brakel, Muris, Bogels, & Thomassen, 2006), but not in parent-reported modelling in clinically anxious children (Menzies & Clarke, 1995). However, these studies can be criticised for methodological shortcomings such as recall bias and lack of objective measurement of parental modelling (Wood, McLeod, Sigman, Hwang, & Chu, 2003). For example, results from adult samples may reflect popular views regarding how fears develop rather than a genuine environmental influence. This limits the

conclusions that can be drawn from these studies, however evidence from observational and experimental studies, which are not subject to this reporter bias, support these findings.

Early observational studies in non-clinically anxious children have shown that toddlers exhibit greater fear towards novel stimuli after observing their mother with a fearful facial expression towards the stimuli (Hornik, Risenhoover, & Gunnar, 1987; Mumme, Fernald, & Herrera, 1996). More recently, parental expressions of anxiety towards both novel social (stranger) and non-social (remote-control toy) situations was found to be significantly associated with higher anxiety in a community sample of toddlers aged 12-months old (Aktar, Majdandzic, de Vente, & Bogels, 2013). However, when the infants were followed up at 30-months old, child anxiety and avoidance in both social and non-social situations was predicted specifically by parental social anxiety disorder, and not by observed parental expressions of anxiety (Aktar, Majdandzic, de Vente, & Bogels, 2014). This contrasts to a prospective study of non-clinically anxious children (Murray et al., 2008), which demonstrated that infants who watched their mother interact anxiously with a stranger at 10 months old, were more avoidant of a stranger at 14 months old, compared to infants whose mother did not interact anxiously with a stranger. Interestingly, maternal behaviour when the infant was 10 months old was more predictive of infant behaviour with the stranger at 14 months old, than how the mother responded at 14 months old. This suggests that parenting modelling in early infancy can be formative for anxious responding, although it is unknown whether this would also apply to the development of anxiety disorders.

Experimental studies in non-clinically anxious children have strengthened the support for the role of parental modelling in the development of anxiety disorders, as this

study design can manipulate parental modelling and directly assess the effect on anxious responding in children. Infants aged 12-14 months old were found to be significantly more anxious and avoidant of a stranger after observing their mother interact with the stranger in a socially anxious manner compared to a non-anxious way (de Rosnay, Cooper, Tsigaras, & Murray, 2006). This effect was stronger in infants who had a more fearful temperament. Gerull and Rapee (2002) found that infants aged 15-20 months old expressed greater fear and avoidance of a toy snake or spider that was paired with a negative facial expression by their mother compared to a positive expression. This effect persisted after 10 minutes when the toy was shown with a neutral expression from their mother. Although this was apparent in both genders, the effect was stronger in girls.

Similar results have been reported in community samples of older children. Burstein and Ginsburg (2010) randomised a small (n=25) non-clinical sample of children aged 8-12 years old to either a condition in which their parent was instructed to act anxiously, or relaxed and confident before the child completed a spelling test. They found that the children exposed to parental anxiety were more anxious and had a greater desire to avoid the task than children exposed to non-anxious maternal behaviour. Interestingly, the effect was stronger when fathers modelled anxiety, as opposed to mothers. The authors suggest this may be as a result of children being less habituated to emotional expressions of their fathers, as the mother was the primary caregiver in this sample.

Taken together, these studies suggest that parental modelling of anxiety is associated with anxious responding in children and would be important to target in interventions. An important limitation of the studies reviewed is that they have only considered the short-term effects on anxious responding in children. So far there is

no evidence that vicarious learning through parental modelling of anxiety will translate into the development of an anxiety disorder in children. Furthermore, there are no observational or experimental studies in clinically anxious children. Treatment studies would therefore add to the literature, as these could examine the effect of reducing parental modelling of anxiety after treatment, on child anxiety in clinical samples.

1.3.2 Positive modelling

Although most studies have focused on the effects of modelling anxiety on the acquisition of fear, some studies have considered whether parental modelling of positive responses towards stimuli may reduce fear responses in children. Early studies have demonstrated that fears in adults and children could be reduced in the short-term from observational learning of positive responses (Bandura, Blahard, & Ritter, 1969; Bandura, Grusec, & Menlove, 1967; Bandura & Rosenthal, 1966). However, other studies have demonstrated weaker effects from observation of maternal positive social interactions with a stranger compared to negative interactions (Hornik et al., 1987; Moses, Baldwin, Rosicky, & Tidball, 2001). In contrast, two early studies that focused specifically on the effects of positive maternal modelling towards a stranger, in the absence of any negative modelling, found that infants were more likely to interact in a more positive way with strangers (Feinman & Lewis, 1983; Feiring, Lewis, & Starr, 1984).

Two recent experimental studies in non-clinical samples have shown similar effects (Dunne & Askew, 2013; Egliston & Rapee, 2007). Egliston and Rapee (2007) demonstrated that 12-20 month old infants who observed their mother responding positively to a toy snake or spider showed more positive emotion and approach behaviour towards the toy then infants who had merely been exposed to the toy or

not. Dunne and Askew (2013) compared positive and anxious modelling by mothers in a vicarious learning and unlearning paradigm. Sixty children aged between 6 and 10 years old were shown pictures of novel animals paired with their mother looking fearful or happy in a counterbalanced repeated measures design. Children who were first shown the animal paired with the scared maternal face expressed more fear of the animal, and then expressed less fear when they were presented with the animal paired with their mother looking happy. Children presented with the animal paired first with the maternal happy face expressed less fear, and then more fear when shown the animal paired with the scared maternal face. This is an important finding as it indicates that positive maternal modelling can potentially prevent or reverse the development of an anxious response, supporting the inclusion of this in treatment programmes. What has yet to be established is whether similar effects would be found with positive modelling in anxious samples of children, either in response to their feared situation or stimuli, or a novel and potentially threatening situation or stimuli. Treatment studies could help inform this by considering whether increased positive parental modelling towards anxiety-provoking stimuli after treatment is associated with greater reduction in child anxiety in clinical samples.

1.3.3 Information acquisition

One influence on the development of anxiety disorders is that children may learn to respond anxiously through parental communication of threat (Hadwin, Garner, & Perez-Olivas, 2006). This has also been referred to in the literature as 'instrumental learning' or 'information transfer' (Fisak & Grills-Taquechel, 2007). Whilst it is normal for parents to protect their child by communicating messages about safety and avoidance of situations which present potential harm, if the actual threat is far less than that communicated, the child may learn to interpret benign, ambiguous or low-threat situations in a threatening way. Indeed there is a substantial body of evidence

that shows that anxious children demonstrate information processing bias towards threatening words and pictures (e.g. Taghavi, Moradi, Neshat-Doost, Yule, & Dalgleish, 2000), although it is unclear whether this has a causal role in the development or maintenance of anxiety disorders (Hadwin et al., 2006).

Observational studies have indicated that anxious mothers (Whaley, Pinto, & Sigman, 1999), as well as non-anxious mothers of clinically anxious children (Moore, Whaley, & Sigman, 2004), make more catastrophising statements in conversations with their child compared to non-anxious mothers or mothers of non-anxious children. Parents of anxious children have also been found to communicate danger about their playing (e.g. 'don't climb too high') more frequently than parents of non-anxious children (Beidel & Turner, 1998), although this was not reported in a later study (Turner, Beidel, Roberson-Nay, & Tervo, 2003). Furthermore, mothers of anxious children were observed to refer less to positive emotions and discourage their child's emotional discussions compared to mothers of non-anxious children (Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005).

Other studies have employed an experimental paradigm to examine how a discussion with a parent can affect child interpretation of ambiguous situations. This study design is more informative than observational studies as it allows examination of the effect of parental communication of threat on anxious responding in children. Barrett, Rapee, Dadds, and Ryan (1996) and Chorpita, Albano, and Barlow (1996) found that anxious children were more likely to choose avoidant solutions to hypothetical threats after discussing the scenario with their parent compared to non-anxious children. In an examination of the content of the family discussion, it was found that although mothers of anxious children were not more likely to introduce threat interpretation, they were more likely to propose an avoidant solution (Dadds,

Barrett, Rapee, & Ryan, 1996). The effect of family on increasing anxious responding in children has been referred to as the FEAR (Family Enhancement of Avoidant Responses) effect (Dadds et al., 1996). The FEAR effect has been shown to be greater in families told that their child would receive treatment for their anxiety disorder and when mothers indicated that they themselves would have greater distress in the ambiguous situations (Shortt, Barrett, Dadds, & Fox, 2001). However, the FEAR effect was not demonstrated in one study which used an in vivo challenge task (speech task) as opposed to hypothetical situations (Cobham, Dadds, & Spence, 1999).

These studies provide evidence of the role of threat communication in how parents may contribute to the development/maintenance of their child's anxiety disorder, indicating these should be targeted in treatment. However, the studies have conceptualised 'communication of threat' as negative messages around risk and safety. It is unclear whether and how studies have attempted to disentangle communication of the situation as risky (threat augmentation), versus communication of their child's vulnerability in that situation (vulnerability promotion). Similarly, there is an absence of studies that have specifically considered the effect of the converse of these behaviours i.e. threat minimisation and vulnerability minimisation. It could be assumed that these would have similar effects to lower levels of threat augmentation and vulnerability promotion. Field and Lawson (2003) demonstrated that positive information given by an adult about an unfamiliar animal reduced children's self-reported fear and avoidance behaviours towards a box the child was told contained the unfamiliar animal. However, experimental studies are needed to explore the effects of parental communication of threat minimisation and vulnerability minimisation, on child anxiety. Treatment studies could also further the literature by

examining both positive and negative communications around threat or vulnerability after treatment and the association of this on child anxiety.

1.3.4 Control

Controlling parenting behaviours have been conceptualised in the literature in a variety of ways, including over-involvement, instruction on how to think and feel, overprotection (limiting exposure to perceived threatening situations), restrictive behaviours, encouragement of dependency and a lack of autonomy granting. Theoretical models (e.g. Chorpita & Barlow, 1998; Rapee, 2001; Wood et al., 2003) postulate that exerting parental control when it is developmentally appropriate for a child to be independent can reduce a child's self-efficacy and confidence to cope with challenges, thus increasing their anxiety. It is also argued that encouragement of autonomy and independence can increase child self-efficacy and thereby result in less anxious responses. Other mechanisms for how control may be linked to child anxiety disorders include through increasing their threat interpretation (Rapee, 2001), reducing their perceived control in threatening situations (Chorpita, Brown, & Barlow, 1998) and by limiting the opportunities for exploration and development of coping skills when faced with uncertainty or novel situations (Barlow, 2002).

Use of controlling parental behaviours has been consistently associated with child anxiety. A meta-analysis of questionnaire and observational studies found that there was a medium effect size for the positive association between parental control and child anxiety, which accounted for six percent of the variance in childhood anxiety (McLeod, Wood, & Weisz, 2007). When control was broken down into the subdimensions of 'over-involvement' and 'autonomy-granting', they found that autonomy granting had a large effect size (0.42) and over-involvement had a medium effect size (0.23).

Van der Bruggen, Stams, and Bogels (2008) conducted a meta-analysis of parent control and child anxiety, confined to studies that had only used behavioural observations of parent-child interactions. Observational data is not subject to the rater-bias apparent in parent self-report, and so is a more reliable methodology. A medium effect size was reported between parental control and child anxiety. An exploration of moderating factors indicated that this relationship was stronger for girls compared to boys, families of higher socioeconomic status, children aged 5-11 years old, and during anxiety-provoking tasks that involved more parent-child discussion compared to child performance.

Although supportive of theoretical models that argue parental control is key to the development and maintenance of childhood anxiety disorders, conclusions regarding the directionality of the effect or specific processes involved cannot be drawn from observational studies. Whilst the majority of the studies analysed by McLeod et al. (2007) and van der Bruggen et al. (2008) were cross-sectional, longitudinal studies have started to emerge which give an indication of the direction of the effect. Parental-reported overprotection was predictive of anxiety symptoms in non-clinical samples of pre-school children one year later (Edwards, Rapee, & Kennedy, 2010), and a large (n=3021) community study of adolescents found that child-reported retrospective accounts of parental overprotection at baseline (aged 14-24 years old) was predictive of youth-anxiety disorder incidence at a 10 year follow-up (Beesdo, Pine, Lieb, & Wittchen, 2010). Whilst these are limited by the bias inherent in self-report, they are supported by an observational study which found lower levels of autonomy granting during a challenging task at age 5 was predictive of child anxiety symptomatology at a 6-year follow-up (Ginsburg, Grover, & Ialongo, 2004).

More recently, studies have experimentally manipulated parental control and examined the effect this has on child anxiety. This study design enables inferences regarding the causal link between parental control and child anxiety. De Wilde and Rapee (2008) instructed mothers of non-clinically anxious children aged 7 to 13 years old to either engage in controlling behaviours or exert minimal control whilst their child prepared a speech. Children in the maternal controlling group were significantly more anxious than those in the non-controlling group when they were later asked to do this task alone. This finding demonstrates how anxious responses can develop from a single experience of controlling maternal behaviour. However, the instructions given to the controlling group also included communication regarding their child's incapability to perform the task, which brings into question whether it was actually the degree to which the mothers were controlling per se that resulted in this difference, or the communication of negative expectations.

Thirlwall and Creswell (2010) conducted an experimental study that aimed to address this issue. Mothers of non-clinically anxious children aged 4-5 years old were instructed to interact with their child in either a controlling or autonomy-granting manner whilst their child prepared a speech. Children in the 'controlling' group made more negative predictions of how well they would perform and were less happy about doing the task compared to children in the 'autonomy-granting' group. This was moderated by child trait anxiety, such that children in the 'controlling' group with higher trait anxiety were more anxious than those with lower trait anxiety. Although this study supports the role of controlling parenting practices in the development of anxiety disorders, it is limited by the small sample size (N=25) and results may not generalise to clinical samples.

The direction of the effect between parental control and child anxiety has been called into question. Eley, Napolitano, Lau, and Gregory (2010) used a genetically informed study design and found that although there was an association between maternal control and child anxiety, child anxiety also brought about maternal control. Although this study was not powered to untangle the specific nature of the gene-environment interaction, the results nonetheless support the proposition that the relationship between maternal control and child anxiety is reciprocal.

Taking the literature altogether, there appears to be clear evidence for an association between controlling parenting behaviours and childhood anxiety, highlighting the importance for this to be targeted in treatment programmes. Whilst there have been exciting advancements in understanding the exact mechanism and the direct of this effect, research in this area is clearly at an early stage and so conclusions regarding these aspects of the relationship are limited. Treatment studies could also help inform this theory, by examining the association of reduced parental control after treatment on child anxiety.

1.3.5 Rejection and criticism

Parental rejection and criticism refers to low warmth, approval and responsiveness (Clark & Ladd, 2000), and behaviours that are hostile, disapproving and dismissive (Drake & Ginsburg, 2012). It is argued to be associated with child anxiety disorders through negatively impacting the child's emotional regulation and increasing their sensitivity to anxiety (Gottman, Katz, & Hooven, 1997), or through increased exposure to parent-child conflict that results in lower self-efficacy and self-worth in the child, leading to increased anxiety (Ginsburg & Schlossberg, 2002). Others suggest that frequent criticism and a lack of warmth can impact on how the child

views the world, encouraging the view that it is threatening and they will not be able to cope (Bogels & Brechman-Toussaint, 2006).

Cross-sectional studies using questionnaire measures have found greater parental rejection and criticism in children with anxiety disorders (Hudson, Dodd, & Bovopoulos, 2011; Lieb et al., 2000) and a positive association with anxiety symptoms in non-clinical samples (Dumas, LaFreniere, & Serketich, 1995; Festa & Ginsburg, 2011; Hibbs, Hamburger, Kruesi, & Lenane, 1993). Both descriptive (Wood et al., 2003) and meta-analytical (McLeod et al., 2007) reviews of the literature conclude that the magnitude of the association between rejection/criticism and child anxiety is only small, accounting for just 4% of the variance in child anxiety (McLeod et al., 2007). One crucial factor in interpreting these results lies in how rejection/criticism has been conceptualised. McLeod et al. (2007) found that breaking down this construct into the subdimensions of 'warmth', 'withdrawal' and 'aversiveness' indicated that there was no effect of 'warmth' (0.06), compared to small effects of 'withdrawal' (0.22) and 'aversiveness' (0.23). They concluded that the absence of 'positive' parenting had less of an impact on childhood anxiety than the presence of 'negative' parenting. Others have suggested that the interaction between 'positive' parenting with other aspects of parenting is critical (Bogels & Brechman-Toussaint, 2006). For example, early studies indicate that a lack of warmth combined with high levels of controlling behaviour, but not low warmth alone, is the most predictive of child anxiety (Parker, 1981, 1990; Silove, Parker, Hadzi-Pavlovic, Manicavasagar, & Blaszczynski, 1991).

Despite this, observational studies have started to emerge which suggest that the presence of 'positive' parenting may play an important role in childhood anxiety disorders. Ollendick, Lewis, Cowart, and Davis (2012) assessed parental warmth

and involvement during a laboratory-based behavioural approach test (BAT) in 7-14 year olds diagnosed with an animal phobia. They found that parental warmth and involvement independently predicted increased approach behaviour towards the feared animal and there was a trend for these factors to predict reduced levels of child anxiety during the exposure task. Other observational studies have shown differences in parental negativity in anxious compared to non-anxious children (Hudson, Doyle, & Gar, 2009; Lindhout et al., 2009). Mothers of children with an anxiety disorder were found to express more negativity towards their child than mothers of non-anxious children (Hudson, Doyle, et al., 2009). Furthermore, mothers were more critical and directed more negative affect towards their child with an anxiety disorder than towards a non-anxious sibling or control child (Lindhout et al., 2009). These studies imply that both warmth and criticism are linked to child anxiety disorders, and should be targeted in treatment programmes.

It is often assumed that the effect of parental rejection runs parent to child, however this has recently been called into question. Support for a reciprocal effects model comes from a large prospective community study of 497 adolescents aged 13 years old at baseline and followed over 6 years. It was found that symptoms of generalised anxiety disorder (GAD) predicted later maternal criticism, and this was mediated by adolescent perceived maternal criticism (Nelemans, Hale, Branje, Hawk, & Meeus, 2013). Overall the results of their longitudinal analyses were more supportive of a reciprocal effects model, rather than the direction of effects running solely from parent to child or child to parent. Treatment studies could help inform this debate, by considering whether change in parental rejection precedes or follows change in child anxiety.

1.3.6 Encouragement

Surprisingly there has been little research into child anxiety disorders and parental encouragement of approach behaviours towards potential threat or feared situations/stimuli. One of the complicating factors in looking at how encouragement is related to child anxiety is that more anxious children may elicit more encouragement from their parents to approach feared situations, resulting in a positive association between anxiety and encouragement. Such a finding goes against the prediction that more encouragement leads to less anxiety. Indeed, this has been reported in a social referencing paradigm in which greater parental encouragement of their 12-month (Aktar et al., 2013) and 30-month (Aktar et al., 2014) infant to approach an unfamiliar adult was associated with more fear and avoidance. However, in a similar paradigm Murray et al. (2008) did find that higher maternal encouragement predicted lower avoidance.

One recent study found that compared to parents of non-anxious children, parents of anxious children aged 9-13 years old were less encouraging in a discussion debating whether or not their child would take part in an optional speech task (Silk et al., 2013). Interestingly, parental encouragement before individual CBT for the anxious child was predictive of better treatment outcomes, suggesting that this may facilitate child engagement in exposure to anxiety-provoking stimuli, a typical component of CBT. This implies that encouragement is important to target in treatment programmes, and suggests that treatment studies could play a role in examining the link between parental encouragement and child anxiety.

1.3.7 Reinforcement of anxiety

The opposite of encouragement has been conceptualised as positive reinforcement of anxious or avoidant behaviour (i.e. promotion of avoidance) towards unfamiliar or

potentially threatening situations (Fisak & Grills-Taquechel, 2007). Parents may assist their children in avoiding feared situations or may provide excessive comfort in an attempt to reduce their anxiety. This is theorised to be reinforcing to the child and thus encouraging of future anxiety in order to elicit parental comfort or avoid feared situations (Rapee, 2002).

Curiously, few studies have specifically examined the effects of reinforcement of anxiety. Retrospective studies have found greater recall of parental encouragement of sick-role behaviour in response to panic symptoms, suggesting that parental reinforcement of anxiety may have been implicated in the development of later anxiety disorders (Ehlers, 1993) or greater anxiety symptomatology in non-clinical samples (Watt & Stewart, 2000; Watt, Stewart, & Cox, 1998), although this methodology is subject to recall bias. However, a correlational study in non-anxious adolescents aged 12-14 years old found that self-reported physical symptoms of anxiety was not associated with adolescent-reported parental reinforcement of those symptoms (e.g. permission to stay home from school) (Muris, Merckelbach, & Meesters, 2001). Methodological issues such as the sole use of adolescent-report, poor psychometric properties of the questionnaire measure and the non-clinical sample may account for the lack of association.

More recently, the notion of family accommodation has been explored in the context of childhood anxiety disorders (Lebowitz et al., 2013). This refers to how family members change their behaviour to reduce or avoid the upset caused by a disorder, including facilitation of avoidance (Calvocoressi et al., 1995). Parents of anxious children were found to report high levels of accommodation with their child, and there was a positive association between parental accommodation and child anxiety symptom severity. The lack of a non-clinical comparison group limits the conclusions

that can be drawn, and the direction of the effect is unknown as accommodating parenting practices may reinforce child anxiety or simply be a response to their anxious child.

Taken together, the few studies that have considered parental reinforcement of approach (i.e. encouragement) or avoidant behaviours indicate that these parental behaviours are likely to be associated with lower or higher anxiety respectively, and are therefore important targets for intervention. However, more studies that utilise observational measures are needed to fully understand the association. Treatment studies could contribute to the literature if greater encouragement and less promotion of avoidance after treatment are found to be associated with child treatment outcome.

1.3.8 Parental cognitions

A key aspect of cognitive theories of anxiety disorders is that there is a tendency to interpret events as threatening and to underestimate coping ability (e.g. Beck, Emery, & Greenberg, 1985; Eysenck, 1992; Mogg & Bradley, 1998; Williams, Watts, MacLeod, & Matthews, 1997). Such cognitions then serve a causal and maintenance role in anxiety disorders, as they result in anxious mood and avoidant behaviour, which then serves to reinforce this anxious cognitive style. Recently, there has been some examination of how parental anxious cognitions may relate to child anxiety. Studies have conceptualised parental anxious cognitions as the expectations that parents have for their child's affective, cognitive and behavioural response, in terms of anxiety, threat interpretation, perceived control, and performance, and for their own response (anxiety, threat interpretation, perceived control over child's feelings and behaviour). Typically these anxious parental cognitions have been measured using questionnaires, such as the Ambiguous

Situations Questionnaire (ASQ; Barrett, Rapee, et al., 1996), which present a series of hypothetical scenarios that are ambiguous for whether they present a threat or not, and parents rate their expectations for how their child and themselves (in relation to their child) would respond. An alternative method has been for parents to rate their expectations of their child's and their own (in relation to their child) response regarding in vivo anxiety-provoking tasks.

Models of the development and maintenance of childhood anxiety disorders have proposed that the mechanism by which parental anxious cognitions influence child anxiety is through the impact this has on parenting behaviours (Bogels & Brechman-Toussaint, 2006; Ginsburg & Schlossberg, 2002; Murray et al., 2009). One view is that poor coping in anxious children leads parents to expect future poor coping and thereby engage in overprotective and over-controlling behaviours to help limit their child's distress (Kortlander, Kendall, & Panichelli-Mindel, 1997). However, as discussed previously, such parental behaviours have been found to result in reduced child self-efficacy and increased child anxiety. Furthermore, parents who view their child as vulnerable, or themselves as incapable of adequately supporting their child, may not challenge child avoidance of fearful stimuli or situations (Rubin, Nelson, Hasting, & Asendorpf, 1999). Another way in which parental anxious cognitions may lead to child anxiety disorders is through the development of anxious cognitions in children, possibly through modelling or simply expressing this anxious cognitive style (e.g. Alloy, 2001).

Several studies have looked at whether parental anxious cognitions are associated with child anxiety. Anxiety symptomatology in a non-clinical sample of pre-school children (aged 3 – 5 years old) was found to be associated with greater parental expectations of child anxiety and avoidant behaviour in ambiguous situations,

alongside lower perceived parental control over their child's emotional and behavioural response (Wheatcroft & Creswell, 2007). In clinical samples of older children (aged 7 and above), cross-sectional studies have found that parents of anxious children expect their child to make more threat interpretations and exhibit more avoidant behaviour in ambiguous threat scenarios on the ASQ and have lower expectations of their child's ability to cope with generic and personally salient ambiguous scenarios compared to parents of non-anxious children (Micco & Ehrenreich, 2008). Differences between anxious and non-anxious children were also reported for maternal expectation of child performance during a speech task, in that mothers of anxious children expected them to be more upset in the task, less able to make themselves feel comfortable and less able to perform the task (Kortlander et al., 1997). Although these studies imply that parental anxious cognitions have a role in child anxiety disorders, the cross-sectional design precludes conclusions on causality, plus the results could simply reflect that parents of anxious children can accurately assess their anxious child's reaction to fearful situations.

If parents do indeed transmit their anxious cognitive style to their child, which then may result in child anxiety, it would follow that parental anxious cognitions would be associated with child anxious cognitions (Lester, Field, Oliver, & Cartwright-Hatton, 2009). Parent self-reported threat expectations have been found to be associated with child self-reported threat expectations in both clinically anxious (Creswell, Schniering, & Rapee, 2005) and non-anxious (Creswell & O'Connor, 2006) children, suggesting that anxious cognitions may be transmitted from parent to child, although the cross-sectional nature of the studies limits the conclusions regarding causality.

Results suggestive of a causal role of parental cognitions in childhood anxiety come from a longitudinal study by Creswell, O'Connor, and Brewin (2006). At two time-

points 6 months apart that coincided with a potentially anxiety-provoking life event (transfer to secondary school), 54 children aged 10-11 years old and their mothers reported on their own threat appraisal and anticipated distress in response to ambiguous situations, and their expectations of their child's threat interpretation and distress in ambiguous scenarios. In addition to significant cross-sectional associations between maternal and child expectations of distress in these situations, parental expectation of higher child distress at time one was predictive of increases in child's anxious cognitions 6 months later. However, this was a small study of a non-clinical sample from a limited age range, which restricts the generalisability of the findings.

Parental anxious cognitions have been linked to anxious responding in children through parental anxiety-enhancing behaviours. Becker and Ginsburg (2011) found that children's negative expectations for their performance in a speech task was associated with observer-rated maternal anxious behaviours and over-control but not maternal negative expectations, suggesting that parental expectations are not sufficient alone to be linked with anxious child cognitions, but rather need to be conveyed through verbal or behavioural means. Regarding parental perceptions of their ability to control their child in challenging situations, it has been reported that a lower sense of control is positively related to increased use of intrusive and overcontrolling parental behaviour management strategies (Bugental & Lewis, 1999; Guzell & Vernon-Feagans, 2004). These studies are limited to community samples and so it is unknown whether this would generalise to clinically anxious children. Furthermore, the cross-sectional observational study designs used, although informative, do not provide evidence of a direct causal link between maternal cognitions and behaviours.

To address the issue of causality, an experimental study by Creswell, O'Connor, and Brewin (2008) aimed to directly test the proposed link between parental anxious cognitions and anxiogenic parental behaviour. In a small (n=52) community sample of children aged 7-11 years old, parental expectations were manipulated regarding their child's response to a challenging task (completing complex anagrams). One group of parents were told that their child would find it a fun and enjoyable task (positive expectations), whilst the other group of parents were told that their child was likely to struggle and may become upset (negative expectations). Parent-child interactions during the anagram task were coded for parental involvement. It was found that parents in the 'negative expectations' group were significantly more involved during the task than the 'positive expectations' group. Although this may not generalise to a clinical sample, this study gives an important demonstration of the causal link between parental anxious cognitions and anxiogenic parental behaviours.

Overall, these studies suggest that anxious parental cognitions should be targeted in interventions, as this may reduce anxiety-provoking parental behaviours and lower child anxious cognitive style, which in turn could reduce child anxiety. However, the lack of studies in clinically anxious children highlights the need for further studies in clinical samples. Treatment studies could add to the literature by examining the association of reduced parental anxious cognitions with child anxiety.

1.3.9 Critique of the literature

One of the complicating factors in synthesising the literature is the lack of methodological consistency in how terms have been defined, child and parent characteristics and anxiety status, measurement tools used and the source of the informant. The salience of such inconsistency is highlighted by McLeod et al. (2007), who reported that across all parenting dimensions, the association between

parenting behaviours and childhood anxiety was significantly stronger in children with an anxiety diagnosis, in studies which used observational measures over questionnaire and interview measures, and when the informant was an observer rather than child or parent.

It has been suggested that future research should operationalise the key parenting constructs and use reliable methods to measure these, preferably with multiple informants to facilitate replication and increase reliability of the data (Drake & Ginsburg, 2012). A broader range of parenting behaviours, for example the inclusion of so far neglected constructs such as intrusiveness and positive parental behaviours and cognitions, would also enable a more complete understanding of the link between parenting and childhood anxiety disorders. The current study will address these points by employing observational measures of a comprehensive range of negative and positive parental behaviours.

Most of the studies have been cross-sectional, which precludes conclusions regarding the causal nature of parental behaviours and cognitions in child anxiety disorders. Although longitudinal studies have started to emerge which can imply a causal link, these cannot rule out the possibility that the results may reflect associations with other variables. The few experimental studies that exist provide the most rigorous examination of the effect of parental behaviours and cognitions on child anxiety. However, these are not naturalistic and children may respond as a result of the parent acting differently from how they might ordinarily.

Treatment studies give the opportunity to look at the direction of effects by altering parent behaviour and cognitions and examining the effect on child anxiety. It has been argued that intervention research can inform models of the development and

maintenance of childhood anxiety disorders (Hudson, Kendall, Coles, Robin, & Webb, 2002). Demonstrating that changes in parental behaviours and cognitions following treatment are associated with child treatment outcome would lend support to the role of parental behaviours and cognitions in the maintenance of anxiety disorders. Although such a finding would be consistent with current theories of the development of childhood anxiety disorders, it would not be a direct examination of etiology as this would require research designs that directly test this e.g. prospective longitudinal studies in children at high-risk for developing anxiety disorders (Hudson et al., 2002). It is nonetheless possible that change in parental behaviours and cognitions would be suggestive of the mechanism underlying change in child anxiety, i.e. that treatment would produce change in parental factors that would then produce change in anxiety.

On balance, the evidence points to a significant link between parenting behaviours and cognitions with childhood anxiety disorders. Whilst the specific nature of this may yet to be fully elucidated, there is a clear rationale for involving parents in the treatment of anxiety; for parents to learn ways of interacting with and thinking about their child, and thus improve child treatment outcome (Stallard, 2005). There is also a role for intervention research to help inform the theoretical understanding of how parental factors are implicated in the development and maintenance of child anxiety disorders.

1.4 Effectiveness of involving parents in the treatment of childhood anxiety disorders

The effectiveness of parental involvement in child anxiety disorder treatment has been examined in several studies, as summarised in Appendix 1. Cognitive Behavioural Treatment (CBT) programmes have either involved parents without their

child in parent-delivered treatment (PCBT) or more commonly, with their child in family-based treatment programmes (FCBT). A variety of designs have been used, from non-controlled, non-randomised pre P/FCBT to post P/FCBT comparison studies (Manassis et al., 2002; Thienemann, Moore, & Tompkins, 2006; van der Sluis, van der Bruggen, Brechman-Toussaint, Thissen, & Bogels, 2012), randomised controlled trials (RCTs) comparing to P/FCBT to a waitlist control only (Cartwright-Hatton et al., 2011; Dadds, Spence, Holland, Barrett, & Laurens, 1997; Hirshfeld-Becker et al., 2010; Lyneham & Rapee, 2006; Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005; Shortt, Barrett, & Fox, 2001; Silverman et al., 1999; Thirlwall et al., 2013; Toren et al., 2000) or to CCBT (Barrett, 1998; Barrett, Dadds, & Rapee, 1996; Barrett, Duffy, Dadds, & Rapee, 2001; Bodden et al., 2008; Cobham, Dadds, & Spence, 1998; Cobham, Dadds, Spence, & McDermott, 2010; Leong, Cobham, de Groot, & McDermott, 2009; Nauta, Scholing, Emmelkamp, & Minderaa, 2001, 2003; Schneider et al., 2013; Silverman, Kurtines, Jaccard, & Pina, 2009; Siqueland, Rynn, & Diamond, 2005; Spence, Donovan, & Brechman-Toussaint, 2000; Wood et al., 2009; Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006). Two studies have compared PCBT with FCBT and a waitlist control group (Rapee, Abbott, & Lyneham, 2006; Waters, Ford, Wharton, & Cobham, 2009) or with FCBT and CCBT (Mendlowitz et al., 1999).

Results regarding the efficacy of involving parents with their child in family-based treatment (FCBT) to reduce child anxiety have been inconsistent. Studies have found a significant reduction in child anxiety post FCBT compared to pre FCBT (n=1) or in FCBT compared to a waitlist control group (n=5) or CCBT (n=6). Others have demonstrated a trend towards better treatment outcomes with FCBT compared to CCBT (n=4), whilst some studies found no difference between FCBT and CCBT (n=7), or better outcomes with CCBT (n=1). Most studies of FCBT (n=18) included

follow-up assessment(s), and have consistently found that FCBT produced sustained reductions in child anxiety. A recent review of the efficacy of FCBT compared to CCBT concluded that there was no clear evidence for involving parents alongside children in treatment for childhood anxiety disorders (Breinholst, Esbjorn, Reinholdt-Dunne, & Stallard, 2012). This echoed the findings from meta-analyses that showed no significant difference in the effect size for FCBT compared to CCBT (In-Albon & Schneider, 2007; Reynolds, Wilson, Austin, & Hooper, 2012).

There are various reasons that could account for the lack of a clear benefit of FCBT over CCBT. These include the methodologically heterogeneous nature of the studies, in terms of the range of the age group (3-18 years), sample size (11 to 267), anxiety disorders, and number of treatment sessions (6-24 parent sessions, 8-16 child sessions). Furthermore, parents have been involved in a variety of ways in FCBT, such as co-therapists, co-clients, in joint parent-child sessions for the whole or just part of the session or as separate to the child sessions. The parental component of FCBT has also varied; some studies purely targeted parental anxiety (n=2), whilst others have targeted multiple factors, including parental cognitions and beliefs (n=4), problem solving and communication skills (n=10), encouragement and modelling of exposure (n=9), coping strategies (n=1), intrusiveness and over-protection (n=4).

The smaller body of literature on parental involvement in treatment *without* their child (PCBT) has yet to be systematically reviewed or subjected to a meta-analysis, arguably due to the smaller number (n=9) of PCBT trials compared to FCBT. Most studies of PCBT have demonstrated a significant reduction in child anxiety post treatment compared to pre treatment (n=2) or in PCBT compared to a waitlist control group (n=6). Those that included follow-up assessments (n=7) reported that treatment effects were maintained. However, PCBT has not been shown to produce

superior treatment effects compared to FCBT (n=3) or CCBT (n=1). Importantly, there are additional benefits of delivering treatment solely through parents such as the cost-effectiveness if therapy hours for simultaneous child treatment sessions are not required, reduced stigma for children not needing to attend therapy, no missed schooling, ability for parents to implement techniques with siblings to prevent anxiety development, and retained skills that can be implemented if anxiety reoccurs in the future (van der Sluis et al., 2012).

One of the aims of including parents in treatment is to modify the parental cognitions and behaviours theorised to be implicated in the development and maintenance of their child's anxiety disorder. Parent-delivered treatment (PCBT) can potentially lend itself more readily to achieving this objective, as the therapist can target these factors whilst skilling parents to manage their child's anxiety. Furthermore, as the child also receives CCBT in FCBT, it would not be possible to know in trials of FCBT whether parental change is as a result of reduced child anxiety from CCBT. Intervening with parents only (PCBT) removes this as a possible confounding factor to some extent, although it should be acknowledged that parents might be doing other things that improves their child's anxiety.

Despite a clear rationale for doing so, most trials of PCBT (or indeed FCBT) have not evaluated whether the parental behaviours and cognitions that they target, do indeed change and whether any change is associated with child treatment outcome. Instead, the primary outcome measure has been child anxiety symptomatology. This is a significant limitation of the literature because by not including parental behaviours and cognitions as outcome measures, it is not possible to know whether PCBT is genuinely no more effective than a waitlist control or other active comparisons (e.g. FCBT or CCBT) in reducing child anxiety, or whether PCBT failed

to significantly change the very things it purports to be the agents of change (Breinholst et al., 2012). The question also remains of whether the degree of parental change in behaviour and cognition is associated with child treatment outcome.

Only one small study of PCBT has looked at change in parent behaviours (van der Sluis et al., 2012), and there is also only one small study examining the effect of PCBT on parent cognitions (Thienemann et al., 2006). Van der Sluis et al. (2012) conducted a small (n=26) pilot study of an 8-week group and telephone CBT programme for parents of young children (4 – 7 year olds), to help them deliver CBT strategies and respond to their child's anxiety more effectively. Parental behaviours were measured before and after the intervention using a questionnaire in which parents reported how they would respond to their child's anxiety. The results showed that parents reported reduced anxiety-enhancing parental behaviour (reinforcement of dependency) and increased positive parental behaviours (positive reinforcement, modelling and reassurance) after the intervention compared to before the intervention. This study implies that PCBT can have a positive effect on parental behaviours implicated in child anxiety disorders, however without a control group comparison it is not possible to know whether these effects were specific to the intervention or due to other extraneous variables such as the effects of maturation, regression to the mean, naturally occurring events or the effects of repeated assessment. Furthermore, the use of parent-report rather than observational measures of parent behaviour, is subject to reporter bias. The strength of the conclusions that can be made is therefore limited.

Thienemann et al. (2006) examined effects on parental cognition in a small (n=24) pilot study of a 12-week parent-delivered CBT group treatment programme for

children aged 7-16 years old. Parents completed a weekly questionnaire on attitudes about their child's anxiety and how they perceived their child's competence and need for support. A significant improvement in these parental cognitions was found over time, that was apparent 6 weeks into the programme. This finding suggests that PCBT can reduce parent anxious cognitions regarding their perception of their child's anxiety, although it is not clear if this is simply a reflection of the reduction in child anxiety that came about from the intervention. Furthermore, there was no control group and so it cannot be known whether these effects were specifically due to the intervention.

The current study will build on the results of this limited literature by employing a randomised controlled trial of PCBT, which is superior to the pre-post intervention comparison study design used by previous studies, as it indicates that any reported effects are specific to the intervention rather than other confounding variables. It will also incorporate observational measures of parental behaviours, which overcome the reporter-bias inherent in the self-report methodology used in the previous studies. A comprehensive range of parental behaviours and cognitions shown in the literature to be associated with child anxiety disorders will be included in the current study, rather than a limited number of factors loosely linked to theory, as has been the case in the previous studies. Furthermore, the current study will not be a pilot study like the previous studies, but will include a comparatively large sample size, which will provide adequate statistical power to detect significant effects on parental behaviours and cognitions.

Although the studies of van der Sluis et al. (2012) and Thienemann et al. (2006) are the most relevant to the current study, there is some evidence of parental change from the FCBT literature which is worth considering here given the scarcity of

evidence from studies of PCBT. Two FCBT studies have measured change in parent behaviour (Silverman et al., 2009; Wood et al., 2009) and one study has considered change in parental cognitions (Schneider et al., 2013).

Silverman et al. (2009) compared FCBT and CCBT in 119 children (51 boys, 68 girls) aged 7 to 16 years old who had a primary anxiety disorder. Change in positive and negative parental behaviours towards the child and parent-child conflict was measured pre and post-treatment and at one-year follow-up using a questionnaire in which the child reported their appraisal of their parent's behaviour. There was a significant improvement in parental factors at post-treatment, although this did not differ significantly between FCBT and CCBT. However, at one-year follow-up, parental factors continued to improve in FCBT, whilst this stayed the same in CCBT. Interestingly, structural equation modelling showed that reductions in child-rated anxiety pre to post treatment was predictive of reductions in child reported negative parental behaviours between post-treatment and one-year follow-up, indicating that change in parental behaviours is preceded by change in child anxiety. However, this study can be criticised for the use of child-report measures instead of more reliable observational measures or indeed the inclusion of parental report on these factors. This is a crucial limitation as it is possible that when children felt less anxious, they perceived their parents in a less negative way. Observational measures of parent behaviours would not be subject to this bias, and would therefore be a more reliable methodology.

In a smaller study (n=35) of children aged 6 to 13 years old, Wood et al. (2009) examined change in an observational measure of parental intrusiveness in a randomised controlled trial (RCT) comparing 12-16 sessions of FCBT compared to CCBT. The FCBT specifically targeted parental intrusiveness and was found to be

superior to CCBT in reducing intrusiveness after the intervention. An exploratory meditational analysis indicated that FCBT reduced child anxiety through reducing parental intrusiveness. This effect was specific to the older age range in this study (10-13 year olds) and was not apparent in younger children (6-9 year olds). It was suggested that this may be partly due to the developmental salience of intrusiveness as a negative parental behaviour in early adolescence as compared to earlier in childhood, although it is unclear exactly how this would be relevant to reducing anxiety levels specifically in that age range. Whilst these results must be viewed tentatively given the small sample size, it nonetheless demonstrates reductions in robustly measured parental behaviour and suggests that this then leads to decreased child anxiety.

Recently, Schneider et al. (2013) reported change in parental cognition in a RCT comparing 16 sessions of FCBT with CCBT in 64 children aged 8-16 years old. 'Dysfunctional parental cognitions' were measured through parent-report on 45 items relating to a range of factors such as catastrophising the impact their child's anxiety will have (e.g. 'My child will grow lonely') and systemic issues (e.g. 'My partner does not understand the needs of our child'). A reduction in dysfunctional parental cognitions was found after FCBT and CCBT, suggesting that change in parental cognitions may have been as a result of viewing their less anxious child differently rather than specific to the parental involvement in treatment. Also, with such a mix of seemingly disparate factors measured in the questionnaire, it is difficult to interpret this finding in terms of understanding what specific parental cognitions were improved.

Whilst these findings from FCBT studies imply that parental change can result from parental involvement in treatment, these studies are subject to similar methodological

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limitations as in the PCBT studies by van der Sluis et al. (2012) and Thienemann et al. (2006). Therefore, the conclusions must be viewed tentatively and the methodological superiority of the current study will build upon these results as previously described.

1.5 Summary

Despite evidence for a role of parental behaviours and cognitions in the development and maintenance of childhood anxiety disorders, attempts to involve parents in treatment have not systematically targeted these parental factors and only a handful have measured change in how parents interact with and think about their child. Moreover, those that have examined parental change are limited by the lack of a control group comparison or observational measures of parental factors. Consequently, it is unclear whether targeting specific anxiogenic parental behaviours and cognitions within treatment for childhood anxiety disorders is effective in producing parental change, and whether any change is associated with child treatment outcome.

Comprehensive and methodologically rigorous measurements of theoretically targeted parental behaviours and cognitions are needed to provide a more complete and reliable account of the efficacy of treatment programmes to change parental behaviours and cognitions, and the association of this with child treatment outcome. Given the cost-effectiveness and other benefits of PCBT above FCBT or CCBT previously described, coupled with the largely consistent finding that PCBT can effectively reduce child anxiety compared to a waitlist control group, PCBT is arguably the most appropriate intervention in which to examine the effects on parental behaviour and cognitions.

1.6 The current study

The current study aimed to help address some of the unanswered questions in the literature and address some of the methodological limitations of previous studies. Specifically, it examined change in parental behaviours and cognitions following a guided parent-delivered CBT programme shown to be an effective treatment for child anxiety disorders (Thirlwall et al., 2013).

As stronger associations between parental behaviours and child anxiety have been reported in studies that have used observational laboratory-based measures of parent behaviours, this methodological approach was adopted in order to ensure methodological robustness. All of the parental behaviours reviewed above were included, regardless of whether these were specifically targeted in the treatment programme. The rationale for this was that some non-targeted behaviours might be indirectly associated with change from the intervention e.g. parents might exhibit more 'warmth' towards their child if they have a greater understanding of their child's anxiety after the treatment, despite 'warmth' not being a direct target of the treatment programme. This approach aimed to provide a comprehensive assessment of whether the treatment programme significantly changed parental behaviours shown to be associated with child anxiety. Other parental behaviours more specific to the experimental demands of the laboratory task were also included in order to provide a thorough study of parental behaviours, which was deemed appropriate for exploratory examination given the scarcity of research in this area.

In terms of parental cognitions, this study incorporated questionnaire measures of parental cognitions pertaining to hypothetical and in vivo anxiety-provoking situations. Both approaches have previously demonstrated an association between parental cognitions and child anxiety. They were included in the current study, in

order to examine whether the treatment programme changed parental cognitions shown to be associated with child anxiety. Given that this was the first study to examine treatment effects on theoretically grounded measures of parental cognitions, it was considered appropriate to incorporate parental cognitions in both hypothetical and in vivo scenarios. Furthermore, a possible advantage of measuring parental cognitions in hypothetical situations is that the child is unlikely to have experienced these specifically before and after treatment, whereas test-retest effects may occur in the anxiety-provoking in vivo task.

Although there is a substantial literature showing parent behaviours and cognitions are associated with child anxiety, there has been very little exploration of whether change in these parental factors is associated with reduction in child anxiety. Therefore, the current study also examined whether child treatment outcome was associated with change in parental behaviour and cognitions.

Using this rigorous and comprehensive methodological approach, this study provided the first examination into the effectiveness for PCBT to change a range of anxiogenic parental behaviours and cognitions, and how this linked to child treatment outcome. The clinical utility of examining this is that it would inform the development of future interventions regarding which parental behaviours and cognitions would be most effective to target in order to maximise child treatment outcome and improve cost-effectiveness of interventions for child anxiety disorders.

Specifically, the hypotheses of the current study were as follows:
1. Parent-delivered treatment will reduce 'negative' parental behaviours and increase 'positive' parental behaviours that were specifically targeted in the treatment programme.

2. Parent-delivered treatment will reduce parental expectation of child anxiety, increase parental expectation of child performance and control, and increase parental perceived control over their child's response in hypothetical (ASQ) and in vivo (Black Box Task) anxiety-provoking situations.

3. Change in parental behaviours and cognition will be associated with change in child treatment outcome.

Chapter 2. Method

2.1 Context

The current study used data collected as part of a larger study into the treatment of anxiety disorders in children conducted in the Berkshire Child Anxiety Clinic (BCAC) at the University of Reading between 2008 and 2011. This is a specialist centre for treatment and research into childhood anxiety disorders, jointly funded by the NHS and University of Reading. The primary aim of the larger study was to examine whether a guided parent-delivered cognitive-behavioural treatment programme for anxious children was effective in reducing child anxiety. However, measures of parental behaviours and cognitions had also been taken before and after treatment.

The author of the current study worked as an Assistant Psychologist on the larger study and was part of the clinical team that delivered the treatment[1]. For the purposes of the current study, the author created the data for the primary outcomes of interest by coding videos of the Black Box Task for parent and child behaviours as outlined in Section 2.4.4. This involved an initial period of training in use of the coding scheme until reliability criteria outlined in Section 2.4.6 were satisfied. The author then coded each video of the Black Box Task for the parental behaviours of interest, to generate data for the current study. This data was then combined by the author with the other variables of interest (i.e. measures of child anxiety) that had been collected as part of the larger study.

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[1] Note that the author was not aware of the treatment condition that the family had been randomised to, either whilst they delivered the treatment or coded the videos, to ensure that the author was blind to the treatment condition. The author delivered treatment to those in both the treatment condition and those in the waitlist control group after the waitlist period, and was not aware of the treatment condition families had been allocated to.

2.2 Participants

2.2.1 Selection and eligibility criteria

Eighty-eight children (n=41, 46.6% in the treatment group and n=47, 53.4% in the wait-list control group) out of a total possible sample of 110 (47 treatment, 63 wait-list) from the larger study had data available on the primary outcome measures of interest for the current study (parental behaviours and cognitions). This subsample from the larger study was therefore selected for the current study. This was a completers only sample, as these families had completed the treatment programme and had attended both the pre and post treatment research assessments.

Children had been recruited through referrals made by local health and education services to BCAC. In order to be eligible to participate, children had to be aged between 7 to 12 years old. This age range was chosen on the basis that parents might have difficulty in applying the cognitive component of the programme with children younger than this (Grave & Blissett, 2004). Children were eligible to participate if they had an anxiety disorder as their principal diagnosis, and did *not* met criteria for Autistic Spectrum Disorder or have a significant learning or physical disability. All of the diagnostic screening was conducted by the assessing clinician in the BCAC as part of the larger study. These eligibility criteria were applied as part of the larger study, in an attempt to homogenise the sample and reduce the possibility that other comorbidities would confound the results.

The child's primary caregiver participated in both the treatment and research aspects of the study. To be eligible to take part, the primary caregiver should *not* meet criteria for diagnosis of an anxiety disorder or other severe mental health difficulties, and should *not* have a significant intellectual impairment. This was confirmed by means of a diagnostic psychological assessment carried out by a clinician in the

BCAC. This was because there is some evidence to suggest that parents who have an anxiety disorder themselves may do less well from such a low intensity treatment approach (e.g. Creswell et al., 2010), and also as anxious parents may have different behaviours and cognitions with their child compared to non-anxious parents (e.g. Creswell, Apetroaia, Murray, & Cooper, 2013). Therefore, by focusing purely on non-anxious parents, this aimed to remove parental anxiety as a possible confounding factor. Parents with severe mental health difficulties were screened out for similar reasons (Reyno & McGrath, 2006). As the treatment programme required the parent to be able to read an accompanying book and apply CBT techniques with their child, it's suitability for use with parents with a significant intellectual impairment is currently unknown, but arguably questionable. Families who did not meet eligibility criteria for the study were offered alternative treatment routinely offered by the clinic (individual child CBT or parent and child CBT sessions) or referred to local Child and Adolescent Mental Health Services (CAMHS) as appropriate to their needs.

2.2.2 Power analysis

Power was calculated using the G*power programme (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007). As the study utilised data that had already been collected, retrospective power calculations were conducted to determine what effect size the available sample size was powered to detect. As detailed in the Introduction, only five studies have previously considered change in parental behaviour and cognition as an outcome in evaluating the efficacy of P/FCBT (Schneider et al., 2013; Silverman et al., 2009; Thienemann et al., 2006; van der Sluis et al., 2012; Wood et al., 2009). Wood et al. (2009) was the only study to use observational measures of parental behaviours, and therefore provided the closest comparison to the current study. A medium effect size was reported by Wood et al. (2009) for change in parental behaviour pre to post FCBT intervention ($d = 0.76$;

Cohen, 1992). Therefore, a medium effect size in the current study was considered appropriate. The sample size in the current study of 88 gave the conventional 80% power to detect a moderate standardised effect size of $d = 0.50$ with a significance level of $p = 0.05$, using multiple analysis of variance (MANOVA) to test Hypothesis One and Two.

Although there are no directly comparable previous studies with regards to Hypothesis Three, Silverman et al. (2009) and Wood et al. (2009) had used meditational analysis to consider whether change in parental behaviours was associated with child treatment outcome. Silverman et al. (2009) was only powered to detect a large (0.85) effect size and the meditational analysis presented by Wood et al. (2009) was presented as exploratory due to their modest sample size of 18 children in each treatment group. Given the exploratory nature of previous studies that were underpowered, coupled with the lack of studies that have considered the association between parental change and child treatment outcome, a small to moderate effect size was felt to be appropriate in the current study as it would enable this hypothesis to be examined in a more robust manner than in previous studies, whilst minimising the chance of making a Type II error (i.e. missing an effect that does exist). The sample size in the current study of 88 gave 80% power to detect a small to moderate effect size (i.e. correlation coefficient = 0.30) with a significance level of $p = 0.05$, using correlation tests to test Hypothesis Three.

2.2.3 Ethical approval and considerations

Ethical approval for the current study was granted by the Ethics Committee at the Psychology Department, Royal Holloway University of London. Previously, ethical approval had been granted by the Berkshire Research Ethics Committee and

University of Reading Ethics Committee for use of the data as outlined in the current study (Appendix 2).

A key ethical consideration was the issue of exposing children to a task (the Black Box Task) that was intended to be anxiety-provoking. Furthermore, there was a degree of deceit in that children were led to believe that they would come into contact with 'scary' items during the task, when in actual fact the items were toys. However, these aspects of the task were not designed to elicit a distressing degree of anxiety and the task was immediately terminated if children exhibited an extreme anxious or distressed response during the task. Families were also told they could stop the task at any point and they did not have to participate.

An additional ethical consideration was that at the time families consented to participate, there was no evidence that the specific intervention used in the study was an effective treatment for childhood anxiety disorders. However, other studies of a similar format (PCBT using a self-help book plus therapist support) had found this to be significantly more effective in reducing child anxiety compared to a waitlist control (Rapee et al., 2006) or CCBT (Lyneham & Rapee, 2006). Furthermore, families were offered individual child CBT or referred to CAMHS after the intervention as required or requested by the family.

2.3 Study Design and Procedures

2.3.1 Design

The study had an experimental design as measures were taken before and after children had received treatment or a wait-for-treatment, and then compared between the groups (treatment or waitlist). It was a single-blind randomised controlled trial (RCT) as only the family knew the treatment condition they had been randomised to.

For Hypothesis One and Two, the independent variable (IV) was treatment condition with two levels (treatment and waitlist control), and the dependent variables (DV) were parental behaviours (Hypothesis One) and cognitions (Hypothesis Two). For Hypothesis Three, the DVs were parental behaviours and cognitions, and child anxiety measures. There were no IVs for Hypothesis Three.

2.3.2 Procedure

Children were initially assessed by the clinical team within BCAC. This included diagnostic assessment of anxiety disorders in addition to completion of the questionnaire measures pertaining to anxiety symptoms and impact. Children who met the eligibility criteria were invited to participate and informed consent was taken from the primary caregiver and child (see Appendix 3 for information sheets and consent forms). Children were then randomised to either treatment or a wait-list control group, using the centralised telephone randomisation service at the Centre for Statistics in Medicine, University of Oxford. Before they started treatment or the wait-for-treatment, families were asked to return to the BCAC for a pre-treatment research assessment. This consisted of a variety of different tasks and assessments that were collected as part of the larger study. The assessments of relevance to the current study were parental and child behaviours during the Black Box Task, Black Box Task expectations, and the Ambiguous Scenarios Questionnaire (ASQ). After the children had received treatment or finished their wait-for-treatment, they were asked to return to the BCAC for a post-treatment research assessment. The Black Box Task, pre-task expectations and ASQ was repeated at this post-treatment assessment, alongside child anxiety measures.

2.3.2.1 Black Box Task

The Black Box Task was a physical challenge task, designed to be anxiety provoking (Creswell et al., 2013; Murray et al., 2012; Orchard, Cooper, & Creswell, 2013). It has been used as a stress task elsewhere and has concurrent validity with child behavioural inhibition (e.g. Kagan, 1989; van Brakel, Muris, & Bogels, 2004; Vreeke et al., 2012), which in turn is associated with anxiety symptomatology in children (e.g. Muris, Meesters, & Spinder, 2003). Children were presented with a black box with four obscured holes, and told there were four 'scary items' in each hole. They were invited to find out what the objects were. Items in the box were a range of toys that varied in their tactile quality (see Appendix 4 for a list of items included). Mothers were present throughout the task and were asked to help their child as they felt was appropriate. The Research Assistant was not present in the room whilst the child completed the task. To help ensure that the task was anxiety provoking the second time the child encountered it (i.e. at the post-treatment research assessment), a variety of sound recordings were used to give the impression that different noises were coming from the items in the black box (e.g. scratching/ rustling). The child was given a maximum of 5 minutes to remove all the items from the box. Video recordings for the task were made using wall mounted cameras operated by the Research Assistant in the next room. Families were explicitly told that they would be videoed during the task, and written consent was obtained (see Appendix 3).

2.3.2.2 Treatment

The treatment was a guided parent-delivered cognitive-behavioural therapy (CBT) treatment programme. Parents were guided through a self-help book (Creswell & Willetts, 2007) by a therapist over eight weekly sessions (see Appendix 5 for a session-by-session outline). Four of these sessions were held face-to-face for one hour, and four of the sessions were 20-minute telephone review sessions.

Therapists followed a manual (devised by the authors of the accompanying self-help book) which included specific points for discussion and questions to ask, as well as exercises to complete with the parent during the session (e.g. exploring what they think their child's thoughts, feelings and behaviour when their child had been recently anxious). Therapist adherence to the manual was monitored through analysis of audio recordings of the treatment session and this was found to be satisfactory (see Thirlwall et al., 2013). The therapy sessions provided support and encouragement to the parent in the implementation of the strategies outlined in the self-help book, an opportunity to practice the strategies and skills, and to help the parent problem solve any difficulties they had implementing the strategies.

The content of the treatment programme included psychoeducation around anxiety and the CBT model, identifying and challenging anxious thoughts, cognitive restructuring, modification of parental responses to their child's anxiety, implementation of a graded exposure to the feared stimulus (related to their child's primary anxiety diagnosis), problem-solving, future goal setting and relapse prevention. Between each session, parents were required to complete homework tasks independently and with their child. For example, monitoring and recording their own responses towards their anxious child and the consequence of their response. The CBT strategies included in the intervention were informed by the NICE guidelines that were available at the time for treating adults with anxiety (NICE, 2004), in the absence of any available specifically for children. The aspects of the intervention that targeted parental behaviours and cognitions were informed by the research literature available at the time of development, as outlined in section 1.3. The effectiveness of this specific intervention on reducing child anxiety had not been established, and this was the primary aim of the larger study (Thirlwall et al.,2013). However, previous studies had shown similar treatments (bibilotherapy plus therapist

support) to be effective for treating child anxiety (Lyneham & Rapee, 2006; Rapee et al., 2005).

2.4 Measures

2.4.1 Socio-demographic information

Child date of birth and gender was provided at the point of referral. The primary caregiver reported child ethnicity and self-reported date of birth, marital status, educational level and employment of themselves and their partner if married or co-habiting (see Appendix 6 for questionnaire).

2.4.2 Child anxiety measures

2.4.2.1 Anxiety Disorders Interview Schedule for DSM IV for Children – Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996)

The ADIS-C/P is a structured diagnostic instrument used to assess children aged 6 to 18 years old for presence and severity of anxiety disorders (Social Anxiety Disorder, Separation Anxiety Disorder, Specific Phobia, Agoraphobia without Panic Disorder, Agoraphobia with Panic Disorder, Panic Disorder without Agoraphobia, Generalised Anxiety Disorder, and Anxiety Disorder Not Otherwise Specified). If either child or parent report of symptoms met criteria for a diagnosis, a clinical severity rating (CSR) ranging from 0 (complete absence of psychopathology) to 8 (severe psychopathology) was assigned. A diagnosis was indicated in those with a CSR of 4 or above (moderate psychopathology), as is standard (Silverman & Ollendick, 2005). The higher CSR based on either the parent or child report was used. If children met diagnostic criteria for more than one anxiety disorder at baseline, the diagnosis with the highest CSR was considered to be their primary diagnosis. The ADIS-C/P was administered before and after the intervention in order to establish the diagnosis and assess change after treatment. Inter-rater reliability

for anxiety diagnosis and CSR was established by comparing coding for a subsample of the same interview between assessors. This was found to be in the excellent range in this sample (as cited in Thirlwall et al., 2013: child-report diagnosis: kappa = 0.98; CSR: ICC = 0.98; parent-report diagnosis: kappa = 0.98; CSR: ICC = 0.97).

The ADIS:C/P has well established psychometric properties (Silverman, Saavedra, & Pina, 2001). Specifically, it has been shown to have test-retest reliability for diagnoses (Silverman & Eisen, 1992) and symptom patterns (Silverman & Rabian, 1995). It was selected for use in the current study not only for its superior reliability and validity compared to other diagnostic tools, but also for its sensitivity in detecting clinical change in treatment outcome research, and for comparability with other RCTs of CBT for anxiety disorders, as almost all have used the ADIS:C/P (Silverman & Ollendick, 2005).

2.4.2.2 Spence Children's Anxiety Scale – child (SCAS-C; Spence, 1998) and parent report (SCAS-P; Nauta et al., 2004)

The Spence Children's Anxiety Scale (child and parent-report; SCAS-C/P; Appendix 7) was used to rate the extent to which 44 (SCAS-C) and 38 (SCAS-P) symptoms of anxiety pertaining to 6 domains of anxiety (generalised anxiety, panic/agoraphobia, social phobia, separation anxiety, obsessive compulsive disorder and physical injury fears) applied to the child (never, sometimes, often and always; range 0 - 3). Items were summed to create a total score of anxiety symptomatology. The SCAS-C/P was administered before and after the intervention in order to monitor change in anxiety symptomatology. The SCAS is appropriate for children aged 7 to 14 years old (child-report) and 6 to 18 years old (parent-report). The SCAS-C/P chosen for use in the current study because it is specifically linked to symptoms of DSM-IV anxiety

disorders. Furthermore, the SCAS-C/P has high internal consistency and can distinguish clinically anxious children from non-anxious children (Nauta et al., 2004; Spence, 1998). Both child and parent report was obtained as using multiple informants has been argued to be more robust methodology than just one informant, as it is not subject to method variance (McLeod et al., 2007). Cronbach's alpha in the current study was 0.87 at pre-treatment and 0.87 at post-treatment for SCAS-P and 0.85 at pre-treatment and 0.87 at post-treatment for SCAS-C.

2.4.2.3 Child Anxiety Impact Scale – child (CAIS-C; Langley et al., 2013) and parent report (CAIS-P; Langley, Bergman, McCracken, & Piacentini, 2004)

The Child Anxiety Impact Scale (child and parent-report; CAIS-C/P; Appendix 8) was used to examine the degree to which anxiety impacted on 3 psychosocial areas of functioning (school, social activities and family/home). Children and parents rated 33 items on a 4-point scale for how much anxiety had interfered for the child (range 0 – 3; not at all, just a little, pretty much, very much). Items were summed to create a total score for anxiety impact. The CAIS-C/P was administered before and after the intervention. It is appropriate for use in children aged 7 to 17 years old (child and parent-report) and it was selected for use in the current study because it provides a psychometrically sound measure of the impact of anxiety and was designed to evaluate treatment response (Langley et al., 2004). Cronbach's alpha in the current study indicated excellent internal consistency for parent-report (CAIS-P: 0.93 for pre-treatment and 0.97 for post-treatment) but was not within acceptable limits for child-report (CAIS-C: 0.35 for pre-treatment and 0.42 for post-treatment). Results for CAIS-C should therefore be interpreted with caution.

2.4.2.4 Clinical Global Impression - Improvement Scale (CGI-I; Guy, 1976)

The Clinical Global Impression - Improvement Scale (CGI-I; Appendix 9) was completed post-treatment by the assessing clinician in BCAC. The degree of the child's improvement from the initial assessment (i.e. baseline) was rated on a 7-point scale (range: 1 'very much improved' to 7 'very much worse'). Scores of 1 or 2 ('much' or 'very much' improved) indicate that the treatment was successful (Walkup et al., 2008). Inter-rater reliability for the whole sample was found to be in the excellent range (ICC = 0.96; Thirlwall et al., 2013).

2.4.3 Child comorbidity measures

Several measures relating to comorbid mental health and behavioural difficulties were included in the current study to characterise the sample and check for treatment group differences in comorbid presentation.

2.4.3.1 Psychiatric diagnoses

The ADIS-CP was also used to assess for the presence and severity of other psychiatric diagnoses and conditions most prevalent in children (e.g. ADHD, depression, enuresis). The same criteria used for diagnosis of anxiety disorders (CSR 4 or above) were applied.

2.4.3.2 Short Mood and Feelings Questionnaire – child and parent report (SMFQ-C/P; Angold, Costello, & Messer, 1995)

Child and parent-report on the Short Mood and Feelings Questionnaire (SMFQ-C/P; Appendix 10) gave a measure of symptoms of low mood. Thirteen depression symptoms were rated for whether they applied to the child over the past 2 weeks using a 3-point Likert scale (not true, sometimes, true; range 0 - 2). It is appropriate for use in children aged 6 to 16 years old and has been shown to have high

concurrent validity with other depression measures (Angold et al., 1995) and good psychometric properties in children aged 7 years and above (Sharp, Goodyer, & Croudace, 2006). It was therefore considered a reliable measure of low mood symptomatology. The internal reliability in the current sample was 0.71 for child-report and 0.94 for parent-report.

2.4.3.3 Conduct Problems Subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997)

The Conduct Problems subscale from the SDQ (see Appendix 11) is a parent-report of their child's behavioural difficulties and is appropriate for use with children aged 4 to 16 years old. Five items were rated on a 3-point Likert scale to indicate whether or not the behaviour applied to their child (not true, sometimes true, certainly true; range 0 - 2). Cronbach's alpha was 0.55 in the current study, indicating satisfactory internal reliability. The lower value here compared to Cronbach's alpha for the other measures may reflect that there were fewer items in this subscale (Field, 2013).

2.4.4 Parental behaviours

Parental behaviours during the Black Box Task were measured using a coding scheme developed by Murray et al. (2012) and adapted by Creswell et al. (2013) for use with this task and age group (see Table 1 for behaviours coded and Appendix 12 for the coding scheme). It included parental behaviours that have been shown in the literature to be associated with child anxiety disorders (McLeod et al., 2007; van der Bruggen et al., 2008). Parental behaviours were classified as 'targeted' or 'non-targeted' on the basis of whether they were specifically addressed within the treatment programme. Although the treatment programme could be argued to encompass each of the parental behaviours coded, some of the behaviours were an explicit focus of the intervention (e.g. reducing promotion of avoidance) compared to

other behaviours (e.g. warmth), which were not a specific target for intervention but may be indirectly impacted on by the treatment. Parental behaviours were also classified as negative or positive based on how the child would typically experience the behaviour (e.g. criticism would be experienced negatively by a child, whereas warmth would be experienced positively) and/or whether or not the behaviour is considered to be anxiogenic (e.g. overprotection has been positively associated with child anxiety, whereas encouragement is likely to be negatively associated with child anxiety).

Each behaviour was rated on a 5-point Likert scale (1 = behaviour not present, 5 = behaviour is pervasive/strong). The exception to this was 'promotion of avoidance', which was measured on a 3-point Likert scale (1 = behaviour not present, 3 = behaviour is pervasive/strong); and 'praise' and 'criticism' which were frequency count scores. Every minute of the Black Box Task was coded for each construct, and then average scores were calculated to account for variation in task duration for each child.

Table 1.

Targeted and non-targeted positive and negative parental behaviours coded in the Black Box Task

Targeted?	+ve / -ve?	Parent Behaviour	Description	Construct as described in literature on parental behaviour and child anxiety
Targeted	+ve	Encouragement	Positive motivation for their child to complete the task regardless of whether the child required this or how the child responded to this. It was indicated by tone of voice and use of encouraging and motivating statements.	Encouragement
Targeted	+ve	Positive modelling	Positive behaviour towards the items or box. Indicators included putting their hand into the box, approaching, touching and showing interest in the items.	Positive modelling
Targeted	+ve	Threat minimisation	Minimisation of the level of threat the task presented. Examples included making positive comments about the items or suggesting appealing items that may be in the box e.g. toys.	Information acquisition
Targeted	+ve	Vulnerability	Verbal minimisation of the child's vulnerability in completing the	Information acquisition

		minimisation	task e.g. through making positive comments about their performance or by challenging or dismissing negative feelings about the task that the child expressed.	
Targeted	+ve	Praise	Number of times the parent explicitly praised the child during the task e.g. 'well done', 'good job'.	Warmth
Targeted	-ve	Parental anxiety	How anxious the parent appeared during the Black Box Task based on their facial expressions, body language, speech and behaviour towards the object or box (e.g. approach or avoidance).	Modelling anxious behaviour
Targeted	-ve	Promotion of avoidance	Allowing their child to avoid the task, either by presenting the child with the option not to complete the task or by suggesting they avoid one of the holes.	Reinforcement of anxiety
Targeted	-ve	Overprotection	Parental comforting or reassurance towards their child when their child's emotional state did not indicate that this was necessary (i.e. they did not present as highly avoidant or anxious).	Control
Targeted	-ve	Threat augmentation	Increasing amount of threat associated with the task by introducing the idea that the items may be threatening to the child	Information acquisition

			or expressing a negative response towards the items e.g. their own or other's fear of that item.	
Targeted	-ve	Vulnerability promotion	Emphasising their child's anxiety or difficulty they may face in the task. Indicators included questioning the child's ability to participate and suggesting that they will struggle to carry out the task.	Information acquisition
Targeted	-ve	Criticism	Number of times the mother explicitly criticised the child e.g. 'you are cheating' or 'you silly thing'.	Rejection/criticism
Non-targeted	+ve	Warmth	General emotional climate provided by the parent. It included verbal (e.g. praise) and physical expressions of warmth (e.g. smiling).	Warmth
Non-targeted	+ve	Quality of relationship	General impression of how affective and reciprocal the relationship was between the parent and the child. This was considered in terms of how 'in tune' the dyad were, resolution of conflicts, mimicking of speech and gesture, and interacting in a	Quality of relationship/Parent-child conflict

playful manner.

Non-targeted	+ve	Facilitation	How much the parent helped the child complete the Black Box Task in an optimal manner e.g. through suggesting practical strategies, pacing them and providing a structure to the task.	No previous studies
Non-targeted	+ve	Engagement	Parental interest and involvement during the task e.g. through their tone of voice, asking questions about the items and showing interest in exploring the box and items.	No previous studies
Non-targeted	+ve	Sensitive responsiveness	Quality of the parent's response to their child's needs and requests during the task e.g. providing non-intrusive help where needed and demonstrating awareness of their child's efforts and responses during the task.	No previous studies
Non-targeted	-ve	Intrusiveness	How controlling the parent was during the task and how much they allowed their child psychological autonomy. Indicators included verbal directives for how to complete the task and physical dominance over the items, box or child's behaviour (e.g. blocking the child from putting their hand in the hole).	Control

| Non-targeted | -ve | Passivity | How inhibited/withdrawn and unhelpful the parent appeared during the task. This was based on their body language (e.g. posture), how they position themselves in relation to the child and the box (e.g. standing back), and the extent to which they were involved in helping the child. | No previous studies |

2.4.5 Child behaviour during Black Box Task

Child anxiety and avoidance during the Black Box Task were also coded following the coding scheme used by Creswell et al. (2013). This was measured in order to see whether children were anxious/avoidant during the task, to examine the child's response to the task before and after treatment, and to consider whether this differed between treatment conditions. Child anxiety measured the extent to which the child was anxious in the task as indicated by their general behaviour (e.g. reluctance to put their hand in the box), body language, facial expression and speech. Child avoidance measured how much the child avoided doing the task. This was indicated verbally (e.g. expressing their reluctance to do the task) or non-verbally by moving away from the box or the items. Both measures of child behaviour were rated on a 5-point Likert scale (1 = behaviour not present, 5 = behaviour is pervasive/strong).

2.4.6 Reliability analysis for coding behaviours in Black Box Task

In order to ensure that the coding scheme was used reliably, a subsample (n=59) of Black Box Task videos that had been collected and coded for a different study by a reliable coder (Research Assistant in BCAC), were second coded by the author of the current study. Two-way mixed, consistency, single-measures intraclass correlation coefficients (ICC) were used to assess for inter-rater reliability between the reliable coder's scores and the author of the current study. In order to be considered reliable at using the coding scheme, the ICC had to be equal or greater than 0.70 (to indicate good to excellent reliability, Cicchetti, 1994) for at least 20 consecutively coded videos (in line with Creswell et al., 2013). Table 2 shows the results of the inter-rater reliability analysis. The majority of the parental and child behaviours coded had ICCs in the 'excellent' range (≥ 0.75, Cicchetti, 1994) or were at the higher end of the 'good' range (defined as 0.60 to 0.74, Cicchetti, 1994). This indicated that the author of the current study was reliable at using the coding

scheme. Videos of the Black Box Task collected as part of the current study were then coded to generate data for analysis.

Table 2.

Interrater reliability for Black Box Task

Behaviours	ICC
Parental behaviours	
Targeted positive behaviours	
Encouragement	0.73
Positive modelling	0.84
Threat minimisation	0.75
Vulnerability minimisation	0.85
Praise	0.83
Targeted negative behaviours	
Parental anxiety	0.82
Promotion of avoidance	0.72
Overprotection	0.73
Threat augmentation	0.79
Vulnerability promotion	0.74
Criticism	0.85
Non-targeted positive behaviours	
Warmth	0.80
Quality of relationship	0.72
Facilitation	0.78
Engagement	0.75
Sensitive responsiveness	0.73

Non-targeted negative behaviours	
Intrusiveness	0.76
Passivity	0.73
Child Behaviours	
Anxiety	0.75
Avoidance	0.83

In order to ensure that inter-rater reliability criteria were satisfied and retained for the data generated for the current study, a reliable coder (Research Assistant in the BCAC) coded a subsample (n=36, 40.9%) of the videos used to generate data for the current study. Inter-rater reliability analysis was carried out to compare their ratings with ratings made by the author of the current study. All the parental and child behaviours coded for the current study had an ICC value in the 'excellent' range (≥ 0.75, Cicchetti, 1994) and ranged from 0.78 to 0.97 (see Appendix 13).

2.4.7 Parental cognitions

2.4.7.1 Black Box Task Expectations

Parents were asked to rate their expectations for how their child and they themselves would respond during the Black Box Task, using a set of items previously used by Creswell et al. (2013) for use with this task (see Appendix 14). Specifically, mothers were asked to rate how anxious they thought their child would be doing the task (0 = 'not at all anxious' – 10 'extremely anxious'); how well they thought their child would perform in the task (0 = 'not well at all' – 10 = 'extremely well'); how much control their child would have over how the task went (0 = 'none at all' – 10 'a lot'); how anxious they themselves expect to feel during the task (0 = 'not at all anxious' – 10 'extremely anxious'); how much control they would have over how their child was

feeling during the task (0 = 'none at all' – 10 'a lot'); and how much control they would have over how well their child did in the task (0 = 'none at all' – 10 'a lot').

2.4.7.2 Ambiguous Situations Questionnaire (ASQ)

A global measure of parental expectations of their child in potentially anxious situations was obtained using the Ambiguous Situations Questionnaire (ASQ; Barrett, Rapee, et al., 1996) that has been adapted (Creswell et al., 2006; Orchard et al., 2013) (see Appendix 15). This measures parental expectation of their child's response and their own response regarding their child in 12 situations that are ambiguous for whether they present a threat or not. Six scenarios could be interpreted as presenting a physical threat (e.g 'Your child is playing inside and your dog runs to the door and starts to bark and growl') and six scenarios could be interpreted as presenting a social threat (e.g. 'Your child arranges to have a party at 4 o'clock and by half past 4 no one has arrived'), and these were presented in a random order.

Mothers were asked to predict how distressed they thought their child would be in each situation (child distress: 0 'not at all distressed' – 10 'extremely distressed'), how much their child could do something about the situation (child control: 0 'nothing at all' – 10 'a lot'), what their child would think in that situation in a free-response format and forced choice between two options (child threat interpretation), and what their child would do in each situation in a free-response format (child avoidance). Mothers were also asked to rate how much they would be able to change how their child felt about each situation later on (maternal control of child feeling: '0 'not at all' – 10 'a lot') and what their child would do if that happened again (maternal control of child behaviour: 0 'not at all' – 10 'a lot'). Free-responses for threat interpretation was recoded as 'threat' or 'no-threat' by a Research Assistant in BCAC blind to the

treatment condition of the family. Similarly, free-responses for what their child would do in each scenario was recoded as 'avoidant' or 'non-avoidant'. Inter-rater reliability for the coding of the free-response options was found to be high (ICC = 0.84). Responses for each question for each situation were summed to create a total score for child distress (range 0 - 120), child control (range 0 – 120), child threat interpretation (forced choice range 0 - 12 ; coded free-response range 0 – 12), child avoidance (range 0 – 12), maternal control of child feelings (range 0 – 120) and maternal control of child behaviour (range 0 - 120). The same situations were presented to mothers at both the pre-treatment and post-treatment assessment. In the current study, internal consistency was in the acceptable to excellent range for each subscale (pre-treatment: 0.69 for child distress, 0.73 for child control, 0.64 for child avoidance, 0.82 for maternal control of child feelings and 0.89 for maternal control of child behaviour; post-treatment: 0.82 for child distress, 0.89 for child control, 0.76 for child avoidance, 0.89 for maternal control of child feeling and 0.92 for maternal control of child behaviour).

2.5 Analysis

2.5.1 Data treatment

Outliers were identified as any datapoint that was at least three standard deviations away from the mean of that variable for each group (Field, 2013). All analyses were run with and without outliers to check if the inclusion of outliers changed the interpretation of the results.

Prior to analysis, the normality of the distribution of each variable was assessed. In addition to visual inspection of the distribution, the significance of skew and kurtosis was calculated for each variable by converting the scores to z scores. Z scores that were greater than 2.58 were considered to be significantly non-normally distributed

and data transformations (square root, log10 and reciprocal) were conducted in an attempt to correct for this. In the event of a significant non-normal distribution in a repeated measures variable (i.e. those measured pre and post treatment), transformations were applied to the variable at both time points, even where the variable was normally distributed at one time point (Field, 2013).

2.5.2 Data reduction

Prior to analysis, variables were considered for reduction based on whether they were highly correlated with other variables that were theoretically similar constructs. Variables that were highly correlated ($r > 0.80$) and conceptually similar were combined for analysis (see Section 3.1.1).

2.5.3 Preliminary analyses

The effect of treatment on reducing child anxiety was examined to establish that this was still significant in this subsample of the larger study (Thirlwall et al., 2013). Recovery from primary anxiety disorder diagnosis and overall improvement (CGI-I ratings) were analysed using log-binomial regression models and change in anxiety symptoms (SCAS-C/P) and impact (CAIS-C/P) were analysed using linear regression models, in line with the analysis plan of Thirlwall et al. (2013).

Treatment group (treatment group versus waitlist control) differences in sociodemographic characteristics and clinical presentation at baseline were examined using t-tests (continuous variables) and Pearson Chi-Square (categorical variables). Differences at baseline for parental behaviours and cognitions between the treatment group and waitlist control group were assessed using Bonferroni-corrected t-tests. These analyses were conducted to examine whether the treatment

groups were comparable on these indices at baseline, as group differences at baseline may affect the effect of the intervention.

Child behaviour in the Black Box Task was analysed using a mixed 2 x 2 univariate analysis of variance (ANOVA). Treatment condition (treatment vs. waitlist control) was the between-subjects factor and time (pre and post intervention) was the within-subjects factor. This aimed to assess how child behaviour changed across the intervention, and whether this was comparable between the treatment groups.

2.5.4 Testing Hypothesis One: Parent-delivered treatment will reduce 'negative' parental behaviours and increase 'positive' parental behaviours that were specifically targeted in the treatment programme.

To examine Hypothesis One, mixed 2 x 2 multivariate analysis of variance (MANOVA) were run with treatment condition (treatment vs. waitlist control) as the between-subjects factor and time (pre and post intervention) as the within-subjects factor. Four MANOVAs were run to examine effects on (i) targeted positive behaviour, (ii) targeted negative behaviour, (iii) non-targeted positive behaviour, and (iv) non-targeted negative behaviour. This procedure simultaneously assessed all measures pertaining to each classification of behaviour.

MANOVA is appropriate for analysing data from repeated measures designs where several different dependent variables (DVs) are measured repeatedly (Tabachnick & Fidell, 2007). It reduces the likelihood of making a Type I error, the risk of which would be elevated if a series of univariate ANOVAs were conducted for each measure individually. Furthermore, the multivariate test also indicates whether there is an effect on a combination of measures.

The multivariate test statistic consulted was Pillai's Trace as this has the most power (Field, 2013). Univariate tests, produced after the multivariate test, should only be consulted when the multivariate tests were significant. However, as very few studies have examined treatment effects on parental behaviours in a treatment programme for child anxiety disorders, and none with the range of behaviours considered in the current study, the univariate test results were reported here as it is possible that the treatment may have significant effects on specific behaviours and cognitions rather than a consistent effect on particular types of behaviour.

The primary effect of interest in both the multivariate and univariate analysis was the treatment condition x time interaction, as a significant interaction could indicate that there was a difference between the treatment groups after treatment. In the event of a significant interaction, this was explored further using Fisher's protected t-tests with a Bonferroni correction applied (criterion value for significance divided by the number of comparisons made) to identify where the significant difference lies, whilst reducing the chances of making a Type 1 error.

The main effects of 'time' were reported to indicate whether there were significant differences in parental behaviours at the first and second time they encountered the Black Box Task. Whilst the main effects of 'time' did not directly address 'Hypothesis One', they were reported for completeness. Main effects of 'treatment group' were not reported as these were not of interest, and baseline treatment group differences in parental behaviours and cognitions had been tested for as detailed in the preliminary analyses.

The analyses described above were also run whilst controlling for child age and gender in a multivariate analysis of covariance (MANCOVA), as these have been

previously shown in the literature to influence parent behaviours (e.g. Dix, Ruble, Grusec, & Nixon, 1986; van der Bruggen et al., 2008) and the effect of parental change on child anxiety change differed by age group in the study by Wood et al. (2009). As there were some discrepancies in the results between the MANOVA and MANCOVA in some of the analyses, the results from both were reported.

2.5.5 Testing Hypothesis Two: Parent-delivered treatment will reduce parental expectation of child anxiety, increase parental expectation of child performance and control, and increase parental perceived control over their child's response in hypothetical (ASQ) and in vivo (Black Box Task) anxiety-provoking situations.

The analytic approach used to test Hypothesis One was applied to test Hypothesis Two. Parental expectations regarding the Black Box Task were analysed in two MANOVAs to examine effects on (i) parental expectations about child response and (ii) parental expectations about their own response. The Ambiguous Scenarios Questionnaire (ASQ) was analysed using MANOVA to examine effects on parental cognitions about child response and ANOVA to examine effects on parental cognitions about their own response.

2.5.6 Testing Hypothesis Three: Change in parental behaviours and cognition will be associated with change in child treatment outcome.

Change scores were calculated as the post-treatment score minus the pre-treatment score, so that negative values indicated a reduction in the DV (e.g. parental intrusiveness, child anxiety symptoms) after treatment. To test Hypothesis Three, Pearson's correlation coefficients were conducted between the change in each measure of parental behaviour and cognition with the change in each measure of child anxiety (SCAS-C/P, CAIS-C/P, CSR, CGI-I). A positive correlation between

change in parental behaviour and child anxiety would indicate that greater change in parental behaviour was associated with greater change in child anxiety.

Due to the large number of correlations conducted, a Bonferroni correction was applied to create a new criterion value for the significance (p) value to reduce the chances of making a Type I error. Therefore for Pearson's correlation coefficient (r) to be considered significant, the p value had to be less than 0.001 for parental behaviours in the Black Box Task (17 parental behaviours x 6 treatment outcomes = 102. 0.05/102 = p < 0.001), less than 0.002 for parental expectations in Black Box Task (5 measures of parental expectations x 6 treatment outcomes = 30. 0.05/30 = 0.002), and less than 0.002 for global parental cognitions (ASQ; 5 measures in ASQ x 6 treatment outcomes = 30. 0.05/30 = 0.002).

Chapter 3. Results

3.1 Data treatment

3.1.1 Data reduction

Intercorrelations between the parental behaviours in the Black Box Task at the pre-treatment and post-treatment assessment are presented in Appendix 16. Ratings of maternal warmth, sensitive responsiveness and quality of relationship were moderately to highly correlated at both the pre-treatment and post-treatment assessments (r = 0.66 to r = 0.77). However, quality of relationship can be considered as a theoretically separate construct to warmth and sensitive responsiveness, as it is dependent upon both parent and child response rather than solely as a parental factor. Warmth and sensitive responsiveness could be theoretically considered as broadly 'positive' parenting behaviours, however warmth has been analysed as a separate dimension in previous research (e.g. Creswell et al., 2013; McLeod et al., 2007), and sensitive responsiveness has not been specifically considered in the literature on child anxiety previously. For these reasons, the individual variables were retained for analysis. None of the other intercorrelations between maternal behaviours on the Black Box Task were consistently highly correlated at both time points (Appendix 16), and therefore maternal behaviours were not combined for analysis. Ratings of child anxiety and avoidance during the Black Box Task were highly correlated at both the pre-treatment (r (88) = 0.86, p < 0.001) and post-treatment (r (88) = 0.94, p < 0.001) assessments. As these are theoretically similar constructs and have been combined for analysis elsewhere (Creswell et al., 2013), they were combined for analysis here.

For the Black Box Task expectations, parental expectations of how much control they felt they would have over their child's feelings during the task was highly correlated with how much control they felt they would have over their child's behaviour during

the task at both the pre-treatment (r (84) = 0.80, p < 0.001) and post-treatment (r (88) = 0.79, p < 0.001) assessment. These variables were therefore combined for analysis to create an overall measure of maternal control, in line with previous studies (Creswell et al., 2013). Pre Black Box Task expectations of level of expected child and maternal anxiety were also highly correlated (r (88) = 0.66, p < 0.001) at the post-treatment assessment. However, as these are conceptually distinct concepts, they were not combined for analysis. All other pre-task expectation measures correlated at r < 0.50 (see Appendix 17), and were therefore analysed as separate items.

In the Ambiguous Situations Questionnaire (ASQ), maternal ratings for their child's threat interpretation free recall response was highly correlated with the forced choice response at both the pre-treatment (r (84) = 0.84, p < 0.001) and post-treatment (r (83) = 0.79, p < 0.001) assessment and so were combined for analysis. Maternal ratings of how in control they would feel of their child's feelings and behaviour were highly correlated at both the pre-treatment (r (84) = 0.85, p < 0.001) and post-treatment (r (84) = 0.92, p < 0.001) assessment, and so were also combined for analysis. Previous studies have also combined ASQ variables in this way (Creswell et al., 2013; Orchard et al., 2013). At the post-treatment assessment, maternal ratings of child distress were correlated with both free response threat interpretation (r (84) = 0.64, p < 0.001) and forced choice threat interpretation (r (84) = 0.61, p < 0.001). However, these were not combined for analysis as they are seemingly conceptually distinct. All other variables correlated at r < 0.52 (see Appendix 18), and were therefore analysed as separate items.

3.1.2 Normality and outliers

All measures on the ASQ were normally distributed. However, some of the parent and child behaviour and cognition measures in the Black Box Task significantly deviated from a normal distribution (significantly negative z-scores for skewness ranged from -2.69 to -12.37, significantly positive z-scores for skewness ranged from 2.66 to 19.76). Transforming the data in line with procedures recommended by Tabachnick and Fidell (2007) did not consistently reduce the skewness to be non-significant in all variables for both treatment groups at each time point. Although Tabachnick and Fidell (2007) recommend that one option for measures that cannot meet criteria for a normal distribution after transformations have been applied is to then dichotomise them, this approach was not adopted in the current study as this would have reduced the measures to simply a presence or absence of each behaviour or cognition. This would have lost information and it is likely that treating the measures in this way would render them less sensitive to small changes.

Due to the study design, it was only possible to test the hypotheses using parametric tests because there were no non-parametric equivalents. It has been argued that parametric tests are robust against violations of normality (Tabachnick & Fidell, 2007). Given this, alongside the unsuccessful attempts to transform the data to a normal distribution, the lack of non-parametric test equivalents available to test the hypotheses, and the clear results from the analyses conducted, the analyses were conducted on untransformed data using parametric tests.

None of the results were significantly altered with the removal of outliers, and therefore the results presented were for analyses with outliers included in order to retain statistical power.

3.2 Sample characteristics

3.2.1 Socio-demographic characteristics

Table 3 shows the socio-demographic characteristics of the sample. Children were aged between 7 and 12 years old. The majority of the children were of 'white' ethnicity, had married parents and lived in families classified as being of middle to higher socio-economic status based on parental education level and employment. There was no significant difference between the treatment group and wait-list control group for child gender (χ^2 (1) = 0.06, p = 0.81), ethnicity (χ^2 (1) = 1.51, p = 0.28), or age (t (86) = 0.27, p = 0.79). Regarding maternal characteristics, there was no significant difference between the treatment group and wait-list control group for maternal age (t (67) = 1.54, p = 0.13) marital status (χ^2 (5) = 3.95, p = 0.56), educational level (χ^2 (3) = 2.34, p = 0.50), or parental employment status (χ^2 (1) = 0.03, p = 0.87). Therefore the groups were well balanced in terms of their socio-demographic characteristics.

Table 3.

Socio-demographic characteristics (n (% of group total), unless otherwise stated)

Characteristic	Treatment group (n = 41, 46.6%)	Waitlist control (n = 47, 53.4%)	Whole sample (n = 88, 100%)
Child			
Age (years; mean (SD))	9.59 (1.61)	9.49 (1.68)	9.53 (1.64)
Gender			
• Male	22 (53.7%)	24 (51.1%)	46 (52.3%)
• Female	19 (46.3%)	23 (48.9%)	42 (47.7%)
Ethnicity			

• White	36 (87.8%)	39 (83.0%)	75 (85.2%)
• Non-white	3 (7.3%)	7 (14.9%)	10 (11.4%)
• Not recorded	2 (4.9%)	1 (2.1%)	3 (3.4%)

Maternal

Age (years; mean (SD))	41.09 (3.91)	39.53 (4.46)	40.28 (4.25)

Marital Status

• Single, never married	1 (2.4%)	3 (6.4%)	4 (4.5%)
• Married (first time)	21 (51.2%)	28 (59.6%)	49 (55.7%)
• Remarried	8 (19.5%)	6 (12.8%)	14 (15.9%)
• Divorced/Separated	6 (14.6%)	5 (10.6%)	11 (12.5%)
• Living with partner	2 (4.9%)	5 (10.6%)	7 (8.0%)
• Widowed	1 (2.4%)	0 (0%)	1 (1.1%)
• Not recorded	2 (4.9%)	0 (0%)	2 (2.3%)

Maternal Education level

• School completion	9 (22.0%)	5 (10.6%)	14 (15.9%)
• Further education	18 (43.9%)	25 (53.2%)	43 (48.9%)
• Higher education	8 (19.5%)	10 (21.3%)	18 (20.5%)
• Postgraduate qualification	4 (9.8%)	6 (12.8%)	10 (11.4%)
• Not recorded	2 (4.9%)	1 (2.1%)	3 (3.4%)

Parental employment

• Higher / professional	12 (29.3%)	14 (29.8%)	26 (29.5%)
• Other employed	25 (61.0%)	27 (57.4%)	52 (59.1%)
• Not recorded	4 (9.8%)	6 (12.8%)	10 (11.4%)

SD = Standard Deviation

3.2.2 Baseline anxiety measures

Table 4 shows the anxiety measures of the sample at the initial assessment (baseline). Children presented with a range of primary anxiety diagnoses, the most common (90.9%) being Separation Anxiety, Social Phobia, Specific Phobia and Generalised Anxiety Disorder. The treatment groups did not significantly differ in the presence (χ^2 (7) = 2.83, *p* = 0.90) or severity (χ^2 (3) = 3.33, *p* = 0.34) of the primary anxiety diagnosis. Most primary diagnoses (61.4%) were rated as severe (CSR 6 or 7). Treatment groups did not differ significantly on parent or child reported anxiety symptomatology (SCAS) or impact of anxiety (CAIS) at baseline (all *p*-values ≥ 0.19). Overall, the treatment groups were evenly balanced for presenting anxiety difficulties.

Table 4.

Baseline anxiety measures (SCAS and CAIS presented as mean (SD) and ADIS:C-P and CSR presented as n (% of group total))

Anxiety measure	Treatment group (*n* = 41)	Waitlist control (*n* = 47)	Whole sample (*n* = 88)
Primary anxiety diagnosis (ADIS:C-P)			
• Separation Anxiety Disorder	9 (22.0%)	10 (21.3%)	19 (21.6%)
• Social Phobia	7 (17.1%)	13 (27.7%)	20 (22.7%)
• Specific Phobia	9 (22.0%)	9 (19.1%)	18 (20.5%)
• Panic Disorder without Agoraphobia	1 (2.4%)	0 (0%)	1 (1.1%)
• Panic Disorder with Agoraphobia	1 (2.4%)	1 (2.1%)	2 (2.3%)
• Agoraphobia without	2 (4.9%)	1 (2.1%)	3 (3.4%)

Panic Disorder			
• Generalised Anxiety Disorder	11 (26.8%)	12 (25.5%)	23 (26.1%)
• Anxiety Disorder Not Otherwise Specified	1 (2.4%)	1 (2.1%)	2 (2.3%)
CSR of primary diagnosis			
• Moderate (CSR 4)	6 (14.6%)	3 (6.4%)	9 (10.2%)
• Moderate (CSR 5)	9 (22.0%)	16 (34.0%)	25 (28.4%)
• Severe (CSR 6)	20 (48.8%)	24 (51.1%)	44 (50.0%)
• Severe (CSR 7)	6 (14.6%)	4 (8.5%)	10 (11.4%)
SCAS total score			
• Parent-report	32.59 (14.21)	36.66 (14.28)	34.8 (14.31)
• Child-report	33.08 (14.89)	38.22 (19.63)	35.87 (17.71)
CAIS total score			
• Parent-report	12.66 (13.19)	15.90 (10.33)	14.41 (11.77)
• Child-report	14.18 (10.76)	14.71 (11.03)	14.46 (10.84)

SD = Standard Deviation, ADIS:C-P = Anxiety Disorders Interview Schedule for DSM IV for children – Child and Parent versions; CSR = Clinical Severity Rating; SCAS = Spence Child Anxiety Scale; CAIS = Child Anxiety Impact Scale

3.2.3 Baseline comorbidities

As shown in Table 5, the sample had very few comorbid non-anxiety psychiatric diagnoses. There were no significant treatment group differences in this, although there was a trend towards higher incidence of major depressive disorder (MDD) in the wait-list control group compared to the treatment group (χ^2 (1) = 3.66, p = 0.06).

Table 5.

Baseline comorbidities (mean (SD) and n (% of group total) presented)

Comorbidity	Treatment group (*n* = 41)	Waitlist control (*n* = 47)	Whole sample (*n* = 88)
Comorbid anxiety diagnosis (ADIS:C-P)			
• Separation Anxiety Disorder	14 (34.1%)	20 (42.6%)	34 (38.6%)
• Social Phobia	21 (51.2%)	28 (59.6%)	49 (55.7%)
• Specific Phobia	18 (43.9%)	16 (34.0%)	34 (38.6%)
• Panic Disorder without Agoraphobia	1 (2.4%)	2 (4.3%)	3 (3.4%)
• Panic Disorder with Agoraphobia	1 (2.4%)	1 (2.1%)	2 (2.3%)
• Agoraphobia without Panic Disorder	6 (14.6%)	2 (4.3%)	8 (9.1%)
• Generalised Anxiety Disorder	25 (61.0%)	26 (55.3%)	51 (58.0%)
• Anxiety Disorder Not Otherwise Specified	1 (2.4%)	1 (2.1%)	2 (2.3%)
Number of comorbid anxiety diagnoses	2.22 (1.19)	2.11 (1.03)	2.16 (1.10)
Comorbid Psychiatric Diagnoses			
• Obsessive Compulsive Disorder	2 (4.9%)	3 (6.4%)	5 (5.7%)
• Post-Traumatic Stress	1 (2.4%)	0 (0%)	1 (1.1%)

Disorder

• Dysthymia	1 (2.4%)	3 (6.4%)	4 (4.5%)
• Major Depressive Disorder	0 (0%)	4 (8.5%)	4 (4.5%)
• Conduct Disorder	0 (0%)	0 (0%)	0 (0%)
• Oppositional Defiant Disorder	5 (12.2%)	6 (12.8%)	11 (12.5%)
• Selective Mutism	0 (0%)	0 (0%)	0 (0%)
• Attention-Deficit Hyperactivity Disorder	2 (4.9%)	6 (12.8%)	8 (9.1%)
SMFQ total score			
• Parent-report	5.41 (6.01)	6.81 (6.74)	6.15 (6.40)
• Child-report	5.95 (4.69)	7.96 (6.23)	7.05 (5.65)
SDQ Conduct Problems Subscale	1.69 (1.58)	1.96 (1.75)	1.84 (1.67)

SD = Standard Deviation, ADIS:C-P = Anxiety Disorders Interview Schedule for DSM IV for children – Child and Parent versions; SMFQ = Short Mood and Feelings Questionnaire; SDQ = Strengths and Difficulties Questionnaire

3.3 Preliminary analyses

Preliminary analyses were conducted to determine whether there were any differences between the treatment groups in parental behaviours and cognitions at baseline. The effect of the treatment on reducing the primary measure of child anxiety (i.e. if the child was free of their primary anxiety disorder) was also explored, in order to establish whether this was comparable to the child treatment outcomes reported in the larger sample by Thirlwall et al. (2013). Furthermore, treatment group differences in child anxiety/avoidance in the Black Box Task at baseline and after

treatment were examined, in order to aid interpretation of the effects observed on parental behaviours in the task. This was important to consider, as the tasks were not exactly the same at each testing occasion.

3.3.1 Confirming the effect of treatment on child anxiety outcomes

Logistic regression analyses were carried out to determine whether the treatment group (treatment vs. waitlist) significantly predicted recovery from primary anxiety diagnosis and overall improvement in anxiety (CGI-I) in this reduced subsample of the larger sample (Thirlwall et al., 2013). Treatment group membership was highly significant in predicting primary anxiety diagnosis recovery status (recovered vs. not recovered) (χ^2 (1) = 7.39, p = 0.007) and overall improvement in anxiety (much/very much improved vs. not much/very much improved; indicating treatment as 'successful' or 'not successful' in line with Walkup et al., 2008) (χ^2 (1) = 26.88, p < 0.001). The odds of children in the treatment group recovering from their primary anxiety diagnosis was 3.38 times higher than a child in the waitlist condition (95% CI: 1.38 – 8.29, p = 0.08). The odds of children in the treatment group showing overall improvement in anxiety was 12.70 times higher than a child in the waitlist condition (95% CI: 4.52 – 35.74, p < 0.001). In linear regression models, there was a significant greater reduction in anxiety impact scores in the treatment group compared to waitlist control as reported by parents (B = -7.72, 95% CI: -11.71 - -3.73, p < 0.001) but there was no difference in child-report (B = -3.45, 95% CI: -8.50 – 1.61, p = 0.18) or for anxiety symptomatology (parent-report SCAS: B = -2.65, 95% CI: -6.72 – 1.41, p = 0.20; child-report SCAS: B = -0.18, 95% CI: -4.96 – 4.59, p = 0.94). These results mirror those reported by Thirlwall et al. (2013), and therefore the treatment was as effective in reducing child anxiety in the current sample as it was in the larger sample.

Table 6.

Child anxiety treatment outcomes (mean (SD) and n (% of group total) presented)

Outcome	Treatment group (*n* = 41)	Waitlist control (*n* = 47)
Recovery from primary anxiety diagnosis (CSR < 4)		
• Recovered	22 (53.7%)	12 (25.5%)
• Not recovered	19 (46.3%)	35 (74.5%)
Overall improvement in anxiety (CGI-I)		
• Much/very much improved	34 (82.9%)	13 (27.7%)
• Not much/very much improved	7 (17.1%)	34 (72.3%)
SCAS total score (change from baseline)		
• Parent-report	-12.97 (9.64)	-12.78 (13.02)
• Child-report	-7.47 (9.80)	-8.75 (13.53)
CAIS total score (change from baseline)		
• Parent-report	-4.48 (8.18)	0.92 (9.60)
• Child-report	-3.17 (11.11)	-0.07 (13.59)

SD = Standard Deviation; CSR = Clinical Severity Rating; CGI-I = Clinical Global Impression – Improvement Scale; SCAS = Spence Child Anxiety Scale; CAIS = Child Anxiety Impact Scale

3.3.2 Treatment group differences in parental behaviours and cognitions at baseline

Independent samples *t*-tests were used to compare parental behaviours and cognitions between the treatment groups at baseline. A Bonferroni correction was applied to reduce the chance of making a Type I error due to the number of comparisons made (criterion value for *p* is 0.05/18, $p < 0.003$). As can be seen in Table 7 and Table 8, there were no significant group differences in any of the measures of parental behaviour or cognition at baseline.

Table 7.

Mean (SD) baseline parental behaviours in the Black Box Task

Parental Behaviour	Whole sample	Treatment group	Waitlist control	*t*	*p* value	*d*
Targeted positive behaviours						
Encouragement	3.23 (0.70)	3.28 (0.64)	3.20 (0.76)	0.54	0.59	0.11
Positive modelling	2.36 (0.93)	2.40 (0.96)	2.32 (0.91)	0.39	0.70	0.09
Threat minimisation	1.77 (0.73)	1.75 (0.80)	1.78 (0.67)	-0.19	0.85	0.04
Vulnerability minimisation	1.20 (0.44)	1.18 (0.42)	1.21 (0.45)	-0.36	0.72	0.07
Praise	0.50 (1.05)	0.44 (0.90)	0.55 (1.18)	-0.51	0.61	.10
Targeted negative behaviours						
Parental anxiety	1.66 (0.61)	1.61 (0.63)	1.72 (0.60)	-0.83	0.41	0.18
Promotion of avoidance	1.07 (0.18)	1.09 (0.22)	1.05 (0.14)	1.08	0.28	0.22
Overprotection	1.13 (0.29)	1.13 (0.29)	1.13 (0.30)	0.01	0.99	<0.001
Threat augmentation	1.73 (0.66)	1.67 (0.62)	1.78 (0.69)	-0.79	0.43	0.17
Vulnerability promotion	1.22 (0.41)	1.19 (0.38)	1.25 (0.43)	-0.66	0.51	0.15

Criticism	0.22 (0.65)	0.10 (0.37)	0.32 (0.81)	-1.68	0.10	0.64
Non-targeted positive behaviours						
Warmth	3.77 (0.63)	3.81 (0.62)	3.73 (0.65)	0.59	0.56	0.13
Quality of relationship	3.70 (0.61)	3.67 (0.61)	3.74 (0.63)	-0.52	0.60	0.11
Facilitation	3.30 (0.67)	3.27 (0.64)	3.33 (0.71)	-0.39	0.70	0.09
Engagement	3.72 (0.62)	3.65 (0.60)	3.78 (0.63)	-1.01	0.32	0.21
Sensitive responsiveness	3.44 (0.71)	3.45 (0.69)	3.44 (0.73)	0.07	0.95	0.01
Non-targeted negative behaviours						
Intrusiveness	1.81 (0.70)	1.74 (0.68)	1.87 (0.72)	-0.86	0.39	0.19
Passivity	1.18 (0.32)	1.25 (0.42)	1.12 (0.21)	1.94	0.06	0.39

SD = Standard Deviation

Bonferroni-corrected p-value for significance = 0.003 (0.05/18)

Table 8.

Mean (SD) baseline parental cognitions

Parental cognition	Whole sample	Treatment group	Waitlist control	*t*	*p* value	*d*
Ambiguous Situations Questionnaire						
Child distress	70.24 (16.04)	65.95 (16.28)	73.96 (15.04)	-2.34	0.02	0.51
Child threat interpretation	6.13 (2.35)	5.77 (2.41)	6.43 (2.28)	-1.30	0.20	0.28
Child avoidance	5.32 (2.61)	4.54 (2.76)	6.00 (2.29)	-2.65	0.01	0.58
Child control	48.55 (17.51)	50.13 (17.98)	47.18 (17.17)	0.77	0.44	0.17
Maternal control over child's feelings and behaviour	57.14 (20.65)	60.31 (20.46)	54.40 (20.64)	1.31	0.19	0.29
Maternal expectations in Black Box Task						
Child anxiety	5.52 (2.70)	5.45 (2.64)	5.59 (2.79)	-0.23	0.82	0.05
Child performance	6.65 (1.89)	6.53 (2.06)	6.76 (1.75)	-0.56	0.58	0.12
Child control	5.92 (2.09)	6.00 (2.21)	5.85 (2.01)	0.33	0.74	0.07

Maternal anxiety	3.48 (2.55)	3.66 (2.55)	3.33 (2.57)	0.59	0.56	0.13
Maternal control of child feeling and behaviour	5.60 (1.99)	5.63 (2.00)	5.57 (2.01)	0.15	0.88	0.03

SD = Standard Deviation

Bonferroni-corrected p-value for significance = 0.005 (0.05/10)

3.3.3 Effect of treatment on child anxiety/avoidance in the Black Box Task

There was a significant main effect of time (F (1, 86) = 19.79, $p < 0.001$, partial η^2 = 0.19), with higher child anxiety/avoidance the second time they encountered the task (mean = 2.39, SD = 1.15) compared to the first time (mean = 1.93, SD = 0.94). The treatment condition x time interaction for child anxiety/avoidance during the Black Box Task was not significant (F (1, 86) = 0.02, $p = 0.89$, partial η^2 = 0.02). Results were unchanged when child age and gender were entered as covariates in the model. Therefore, children were significantly more anxious during the Black Box Task at the second assessment, and this was the case for children in both the treatment group and the waitlist control group.

3.4 Results for Hypothesis One

Mixed 2 x 2 multivariate analysis of variance (MANOVA) were run for each grouping of parental behaviour with treatment condition (treatment vs. waitlist control) as the between-subjects factor and time (pre and post intervention) as the within-subjects factor. Main effects of time and the treatment group x time interactions were examined. Age and gender were controlled for in separate MANCOVAs.

3.4.1 Main effect of time

The main effects of time (pre and post intervention) indicated whether there were significant differences in maternal behaviours the first and second time the families encountered the Black Box Task. Multivariate tests of the main effect of time were significant for targeted positive behaviours (Pillai's Trace = 0.45, F (5, 82) = 13.31, $p < 0.001$, partial η^2 = 0.45), targeted negative behaviours (Pillai's Trace = 0.28, F (6, 81) = 5.17, $p < 0.001$, partial η^2 = 0.28), non-targeted positive behaviours (Pillai's Trace = 0.25, F (5, 82) = 5.38, $p < 0.001$, partial η^2 = 0.25), and non-targeted negative behaviours (Pillai's Trace = 0.36, F (2, 85) = 24.20, $p < 0.001$, partial η^2 =

0.36). As shown in Table 9, the univariate tests indicated that post-intervention scores were significantly lower than pre-intervention scores for overprotection, positive modelling, encouragement, threat minimisation, praise, facilitation, and engagement, whereas parental anxiety, intrusiveness and passivity were all significantly higher at post-intervention compared to pre-intervention.

However, when age and gender were controlled for in the MANCOVA, the multivariate test for the main effect of time only approached significance for positive targeted behaviours (Pillai's Trace = 0.12, $F_{(5, 79)}$ = 2.22, p = 0.06, partial η^2 = 0.12) and was non-significant for all other behaviours (all p values ≥ 0.19). As shown in Table 9, the univariate tests indicated that parents were significantly less encouraging, less engaged and less sensitive in their responsiveness at post-intervention compared to pre-intervention. This indicates that overall, there were only small changes in how parents interacted with their child pre and post intervention.

Table 9.

Parental behaviours pre-intervention and post-intervention (unadjusted mean (SD) and adjusted[1] mean (SEM))

Parental behaviour	Unadjusted/ adjusted	Pre-intervention	Post-intervention	F (p)	Partial η^2
Targeted positive behaviours					
Encouragement	Unadjusted	3.23 (0.70)	2.77 (0.85)	21.11 (<0.001)	0.20
	Adjusted	*3.24 (0.08)*	*2.78 (0.09)*	*6.35 (0.01)*	*0.07*
Positive modelling	Unadjusted	2.36 (0.93)	1.90 (0.85)	17.12 (<0.001)	0.17
	Adjusted	*2.35 (0.10)*	*1.88 (0.09)*	*0.04 (0.85)*	*<0.001*
Threat minimisation	Unadjusted	1.77 (0.73)	1.25 (0.45)	43.28 (<0.001)	0.34
	Adjusted	*1.77 (0.08)*	*1.25 (0.05)*	*3.67 (0.06)*	*0.04*
Vulnerability minimisation	Unadjusted	1.20 (0.44)	1.10 (0.37)	3.48 (0.07)	0.04
	Adjusted	*1.19 (0.05)*	*1.10 (0.04)*	*0.65 (0.42)*	*0.01*
Praise	Unadjusted	0.50 (0.65)	0.16 (0.52)	5.77 (0.02)	0.06

	Adjusted	0.50 (0.11)	0.27 (0.07)	0.78 (0.38)	0.01
Targeted negative behaviours				
Parental anxiety	Unadjusted	1.66 (0.61)	2.00 (0.85)	8.68 (0.004)	0.09
	Adjusted	*1.67 (0.06)*	*2.00 (0.09)*	*0.46 (0.50)*	*0.01*
Promotion of avoidance	Unadjusted	1.07 (0.18)	1.11 (0.31)	0.81 (0.37)	0.01
	Adjusted	*1.07 (0.02)*	*1.11 (0.03)*	*2.98 (0.09)*	*0.04*
Overprotection	Unadjusted	1.13 (0.29)	1.01 (0.05)	15.97 (<0.001)	0.16
	Adjusted	*1.13 (0.03)*	*1.01 (0.01)*	*0.53 (0.47)*	*0.01*
Threat augmentation	Unadjusted	1.73 (0.66)	1.78 (0.84)	0.20 (0.66)	0.002
	Adjusted	*1.73 (0.07)*	*1.77 (0.09)*	*0.74 (0.39)*	*0.01*
Vulnerability promotion	Unadjusted	1.22 (0.41)	1.15 (0.31)	1.95 (0.17)	0.02
	Adjusted	*1.22 (0.04)*	*1.15 (0.03)*	*0.12 (0.73)*	*0.001*
Criticism	Unadjusted	0.22 (0.65)	0.16 (0.52)	0.57 (0.45)	0.01
	Adjusted	*0.21 (0.07)*	*0.15 (0.06)*	*0.87 (0.35)*	*0.01*

Non-targeted positive behaviours					
Warmth	Unadjusted	3.77 (0.63)	3.63 (0.59)	2.71 (0.10)	0.03
	Adjusted	*3.77 (0.07)*	*3.63 (0.06)*	*1.02 (0.32)*	*0.01*
Quality of relationship	Unadjusted	3.70 (0.61)	3.70 (0.61)	0.001 (0.98)	<0.001
	Adjusted	*3.70 (0.07)*	*3.71 (0.07)*	*3.36 (0.07)*	*0.04*
Facilitation	Unadjusted	3.30 (0.67)	2.99 (0.76)	11.43 (0.001)	0.12
	Adjusted	*3.30 (0.07)*	*3.00 (0.08)*	*0.32 (0.57)*	*0.004*
Engagement	Unadjusted	3.72 (0.62)	3.35 (0.78)	14.47 (<0.001)	0.14
	Adjusted	*3.71 (0.07)*	*3.35 (0.08)*	*4.09 (0.05)*	*0.05*
Sensitive responsiveness	Unadjusted	3.44 (0.71)	3.38 (0.67)	0.31 (0.58)	0.004
	Adjusted	*3.44 (0.08)*	*3.39 (0.07)*	*4.22 (0.04)*	*0.05*
Non-targeted negative behaviours					
Intrusiveness	Unadjusted	1.81 (0.70)	2.31 (0.77)	23.56 (<0.001)	0.22

	Adjusted	*1.80 (0.07)*	*2.29 (0.08)*	*0.58 (0.45)*	*0.01*
Passivity	Unadjusted	1.18 (0.32)	1.55 (0.83)	15.72 (<0.001)	0.16
	Adjusted	*1.19 (0.04)*	*1.54 (0.09)*	*1.61 (0.21)*	*0.02*

[1] = Adjusted for child age and gender; SD = Standard deviation; SEM = Standard Error of the Mean

3.4.2 Treatment condition x time interactions

The multivariate tests of treatment condition x time interactions were not significant for targeted positive behaviours (Pillai's Trace = 0.02, F (5, 82) = 0.27, p = 0.93, partial η^2 = 0.02), targeted negative behaviours (Pillai's Trace = 0.01, F (6, 81) = 0.17, p = 0.99, partial η^2 = 0.01), non-targeted positive behaviours (Pillai's Trace = 0.03, F (5, 82) = 0.47, p = 0.80, partial η^2 = 0.03), or non-targeted negative behaviours (Pillai's Trace = 0.01, F (2, 85) = 0.55, p = 0.58, partial η^2 = 0.01). Univariate tests also did not reveal any significant treatment condition x time interactions (p values all ≥ 0.25).

When child age and gender were controlled for, there was no interpretable change in any of the multivariate tests (p values all ≥ 0.48), however in the univariate tests, the time x treatment condition x gender interaction was significant for maternal anxiety (F (1, 83) = 4.08, p = 0.047, partial η^2 = 0.05) and engagement (F (1, 83) = 4.68, p = 0.03, partial η^2 = 0.05). Bonferroni-corrected t-tests (p value for significance: p = 0.05 / 8, p = 0.006) did not indicate a significant difference between the treatment groups in either maternal behaviours at either time point or either boys or girls (all p values ≥ 0.025). Therefore, overall the guided parent-delivered treatment programme did not significantly affect maternal behaviours during the Black Box Task (Table 10).

Table 10.

Parental behaviours pre-intervention and post-intervention in each treatment condition (unadjusted mean (SD) and adjusted[1] mean (SEM))

Parental behaviour	Unadjusted/ adjusted	Pre-intervention		Post-intervention		F (p)	Partial η^2
		Treatment	Waitlist	Treatment	Waitlist		
Targeted positive behaviours							
Encouragement	Unadjusted	3.28 (0.64)	3.20 (0.76)	2.80 (0.82)	2.75 (0.88)	0.03 (0.88)	<0.001
	Adjusted	*3.27 (0.11)*	*3.20 (0.10)*	*2.81 (0.13)*	*2.75 (0.12)*	*0.01 (0.93)*	*<0.001*
Positive modelling	Unadjusted	2.40 (0.96)	2.32 (0.91)	1.84 (0.98)	1.95 (0.74)	0.67 (0.41)	0.01
	Adjusted	*2.39 (0.15)*	*2.32 (0.14)*	*1.82 (0.13)*	*1.95 (0.12)*	*0.70 (0.41)*	*0.01*
Threat minimisation	Unadjusted	1.75 (0.80)	1.78 (0.67)	1.26 (0.36)	1.25 (0.51)	0.06 (0.81)	0.001
	Adjusted	*1.76 (0.12)*	*1.79 (0.11)*	*1.26 (0.07)*	*1.25 (0.06)*	*0.04 (0.85)*	*<0.001*
Vulnerability minimisation	Unadjusted	1.18 (0.42)	1.21 (0.45)	1.06 (0.17)	1.13 (0.48)	0.15 (0.70)	0.002
	Adjusted	*1.17 (0.07)*	*1.21 (0.06)*	*1.06 (0.06)*	*1.13 (0.05)*	*0.08 (0.78)*	*0.001*
Praise	Unadjusted	0.44 (0.90)	0.27 (0.59)	0.55 (1.18)	0.26 (0.71)	0.43 (0.52)	0.01

	Adjusted	*0.45 (0.17)*	*0.56 (0.16)*	*0.29 (0.10)*	*0.26 (0.09)*	*0.47 (0.50)*	*0.01*
Targeted negative behaviours							
Parental anxiety	Unadjusted	1.61 (0.63)	1.78 (0.69)	1.89 (0.71)	2.09 (0.95)	0.15 (0.70)	0.002
	Adjusted	*1.62 (0.09)*	*1.71 (0.09)*	*1.90 (0.13)*	*2.10 (0.12)*	*0.21 (0.65)*	*0.002*
Promotion of avoidance	Unadjusted	1.09 (0.22)	1.05 (0.14)	1.13 (0.37)	1.08 (0.25)	0.01 (0.94)	<0.001
	Adjusted	*1.10 (0.03)*	*1.05 (0.03)*	*1.13 (0.05)*	*1.08 (0.04)*	*0.002 (0.96)*	*<0.001*
Overprotection	Unadjusted	1.13 (0.29)	1.13 (0.30)	1.00 (0)	1.01 (0.07)	0.03 (0.85)	<0.001
	Adjusted	*1.12 (0.05)*	*1.13 (0.04)*	*1.00 (0.01)*	*1.01 (0.01)*	*0.02 (0.89)*	*<0.001*
Threat augmentation	Unadjusted	1.67 (0.62)	1.78 (0.69)	1.64 (0.72)	1.90 (0.93)	0.62 (0.43)	0.01
	Adjusted	*1.68 (0.10)*	*1.78 (0.09)*	*1.64 (0.13)*	*1.90 (0.12)*	*0.75 (0.39)*	*0.01*
Vulnerability promotion	Unadjusted	1.19 (0.38)	1.25 (1.25)	1.12 (0.31)	1.18 (0.31)	<0.001 (1.0)	<0.001
	Adjusted	*1.19 (0.06)*	*1.25 (0.06)*	*1.11 (0.05)*	*1.18 (0.04)*	*0.01 (0.94)*	*<0.001*
Criticism	Unadjusted	0.10 (0.37)	0 (0)	0.32 (0.81)	0.30 (0.69)	0.24 (0.63)	0.003
	Adjusted	*0.11 (0.10)*	*0.32 (0.09)*	*0.00 (0.08)*	*0.30 (0.08)*	*0.30 (0.59)*	*0.004*

Non-targeted positive behaviours							
Warmth	Unadjusted	3.81 (0.62)	3.73 (0.65)	3.66 (0.58)	3.60 (0.60)	0.01 (0.91)	<0.001
	Adjusted	*3.80 (0.10)*	*3.73 (0.09)*	*3.67 (0.09)*	*3.60 (0.09)*	*0.003 (0.96)*	*<0.001*
Quality of relationship	Unadjusted	3.67 (0.61)	3.74 (0.63)	3.71 (0.66)	3.69 (0.58)	0.28 (0.60)	0.003
	Adjusted	*3.67 (0.10)*	*3.74 (0.09)*	*3.72 (0.10)*	*3.69 (0.09)*	*0.32 (0.57)*	*0.004*
Facilitation	Unadjusted	3.27 (0.64)	3.33 (0.71)	3.07 (0.76)	2.92 (0.77)	1.33 (0.25)	0.02
	Adjusted	*3.28 (0.11)*	*3.33 (0.10)*	*3.09 (0.12)*	*2.92 (0.11)*	*1.43 (0.24)*	*0.02*
Engagement	Unadjusted	3.65 (0.60)	3.78 (0.63)	3.30 (0.79)	3.40 (0.77)	0.03 (0.88)	<0.001
	Adjusted	*3.65 (0.10)*	*3.78 (0.90)*	*3.30 (0.12)*	*3.40 (0.11)*	*0.03 (0.87)*	*<0.001*
Sensitive responsiveness	Unadjusted	3.45 (0.69)	3.44 (0.73)	3.46 (0.58)	3.31 (0.73)	0.51 (0.48)	0.01
	Adjusted	*3.45 (0.11)*	*3.44 (0.11)*	*3.47 (0.10)*	*3.31 (0.10)*	*0.64 (0.43)*	*0.01*
Non-targeted negative behaviours							
Intrusiveness	Unadjusted	1.74 (0.68)	1.87 (0.72)	2.21 (0.80)	2.40 (0.74)	0.08 (0.78)	0.001

	Adjusted	*1.74 (0.11)*	*1.86 (0.10)*	*2.20 (0.05)*	*2.39 (0.11)*	*0.11 (0.75)*	*0.001*
Passivity	Unadjusted	1.25 (0.41)	1.12 (0.20)	1.53 (0.83)	1.57 (0.84)	0.88 (0.35)	0.01
	Adjusted	*1.25 (0.05)*	*1.12 (0.05)*	*1.57 (0.12)*	*1.57 (0.12)*	*1.15 (0.29)*	*0.01*

[1] = Adjusted for child age and gender; SD = Standard deviation; SEM = Standard Error of the Mean

3.5 Results for Hypothesis Two

The same analysis as for Hypothesis One was conducted for Hypothesis Two.

3.5.1 Black Box Task Expectations

3.5.1.1 Main effect of time

Multivariate tests of the main effect of time (pre and post intervention) were significant for maternal pre-task expectations of how their child would respond (Pillai's Trace = 0.46, F (3, 78) = 22.42, $p < 0.001$, partial η^2 = 0.46) and how they themselves would respond (Pillai's Trace = 0.16, F (2, 81) = 7.64, $p = 0.001$, partial η^2 = 0.16) in the Black Box Task. All of the univariate tests of the main effect of time were significant (all p values ≤ 0.03).

As shown in Table 11, the second time they encountered the Black Box Task, mother's expected their child to be less anxious, perform better, and have greater control over their performance. They also expected themselves to be less anxious during the task, and have less control over how their child felt and performed in the task. However, when child age and gender were controlled for, there were no significant main effects of time in either the multivariate (child response: Pillai's Trace = 0.06, F (3, 75) = 1.65, $p = 0.19$, partial η^2 = 0.06; self-response: Pillai's Trace = 0.02, F (2, 78) = 0.83, $p = 0.44$, partial η^2 = 0.02) or univariate tests (see Table 11). Therefore, mothers' expectations of their child and their own response during the Black Box Task did not differ significantly across time.

Table 11.

Parental expectations of child and self-response in Black Box Task pre and post intervention (mean (SD) and adjusted[1] mean (SEM))

Parental cognition	Unadjusted/ adjusted	Pre-intervention	Post-intervention	F (p)	Partial η^2
Parental expectation of child response					
Child anxiety	Unadjusted	5.52 (2.70)	2.82 (2.62)	65.93 (<0.001)	0.45
	Adjusted	*5.54 (0.29)*	*2.85 (0.29)*	*3.25 (0.08)*	*0.04*
Child performance	Unadjusted	6.65 (1.89)	8.02 (2.09)	23.55 (<0.001)	0.23
	Adjusted	*6.62 (0.21)*	*7.91 (0.24)*	*1.25 (0.27)*	*0.02*
Child control of performance	Unadjusted	5.92 (2.09)	7.29 (2.00)	27.72 (<0.001)	0.26
	Adjusted	*5.98 (0.23)*	*7.26 (0.22)*	*0.04 (0.85)*	*<0.001*
Parental expectation of self- response					
Parental anxiety	Unadjusted	3.48 (2.55)	2.24 (2.47)	14.84 (<0.001)	0.15
	Adjusted	*3.49 (0.28)*	*2.26 (0.28)*	*0.004 (0.95)*	*<0.001*
Parental control of their child's feelings and performance	Unadjusted	5.60 (1.99)	4.89 (2.72)	4.99 (0.03)	0.06

Adjusted	5.60 (0.22)	4.88 (0.30)	1.31 (0.26)	0.02

[1] = Adjusted for child age and gender; SD = Standard deviation; SEM = Standard Error of the Mean

3.5.1.2 Treatment condition x time interactions

The multivariate tests of treatment condition x time interactions were not significant for parental pre-task expectations of how their child would respond (Pillai's Trace = 0.02, F (3, 78) = 0.43, p = 0.74, partial η^2 = 0.02) or how they themselves would respond (Pillai's Trace = 0.02, F (2, 81) = 0.97, p = 0.39, partial η^2 = 0.02). There were also no significant treatment condition x time interactions in the univariate tests (all p values $\geq$ 0.35). No interpretable differences in the results were noted when child age and gender were controlled for. Therefore, there was no significant effect of the guided parent-delivered treatment programme on how parent's expected their child to manage during the Black Box Task or in their perceived ability to control their child's feelings and performance during the task (Table 12).

Table 12.

Parental expectations of child and self-response in Black Box Task pre and post intervention in each treatment condition (mean (SD) and adjusted[1] mean (SEM))

Parental cognition	Unadjusted/ adjusted	Pre-intervention		Post-intervention		F (p)	Partial η^2
		Treatment	Waitlist	Treatment	Waitlist		
Parental expectation of child response							
Child anxiety	Unadjusted	5.45 (2.64)	5.59 (2.79)	2.49 (2.58)	3.11 (2.66)	0.88 (0.35)	0.01
	Adjusted	*5.58 (0.43)*	*5.49 (0.39)*	*2.58 (0.44)*	*3.12 (0.40)*	*0.24 (0.63)*	*0.003*
Child performance	Unadjusted	6.53 (2.06)	7.93 (2.10)	7.93 (2.10)	8.11 (2.10)	0.04 (0.84)	<0.001
	Adjusted	*6.44 (0.31)*	*6.80 (0.28)*	*7.78 (0.35)*	*8.04 (0.32)*	*0.11 (0.74)*	*0.001*
Child control of performance	Unadjusted	6.00 (2.20)	5.85 (2.01)	7.63 (1.84)	7.00 (2.11)	0.75 (0.39)	0.01
	Adjusted	*6.10 (0.35)*	*5.87 (0.31)*	*7.56 (0.33)*	*6.95 (0.30)*	*1.17 (0.28)*	*0.02*
Parental expectation of self- response							

Parental anxiety	Unadjusted	3.66 (2.55)	3.33 (2.57)	2.12 (2.46)	2.34 (2.50)	0.86 (0.36)	0.01
	Adjusted	*3.66 (0.42)*	*3.32 (0.38)*	*2.15 (0.41)*	*2.38 (0.38)*	*0.79 (0.38)*	*0.01*
Parental control of their child's feelings and performance	Unadjusted	5.63 (2.00)	5.57 (2.01)	5.28 (2.76)	4.55 (2.66)	0.36 (0.55)	0.004
	Adjusted	*5.64 (0.32)*	*5.56 (0.30)*	*5.10 (0.44)*	*4.66 (0.40)*	*0.32 (0.58)*	*0.004*

[1]= Adjusted for child age and gender; SD = Standard deviation; SEM = Standard Error of the Mean

3.5.2 Ambiguous Situations Questionnaire

3.5.2.1 Main effect of time

For maternal ratings of child response in the ambiguous scenarios, there was a significant multivariate main effect of time (Pillai's Trace = 0.33, F (4, 74) = 9.25, $p <$ 0.001, partial η^2 = 0.33). In the univariate tests, the main effect of time was significant for all measures of child response (all p values ≤ 0.035). There was a significant main effect of time for maternal rating of control over child's response (F (1, 78) = 9.17, p = 0.003, partial η^2 = 0.11). However, when child age and gender were included as covariates in a MANCOVA, neither the multivariate or univariate main effects of time were significant (all p values ≥ 0.18). Therefore, mothers did not rate their child's or their own response in the ambiguous scenarios differently the first time they completed the ASQ compared to the second time, as shown in Table 13.

Table 13.

Parental ratings of child and self-response in ASQ pre and post intervention (mean (SD) and adjusted[1] mean (SEM))

Parental cognition	Unadjusted/ adjusted	Pre-intervention	Post-intervention	F (p)	Partial η^2
Parental rating of child response					
Child distress	Unadjusted	70.24 (16.04)	62.96 (17.53)	12.08 (0.001)	0.14
	Adjusted	*69.72 (1.83)*	*63.08 (1.95)*	*0.01 (0.93)*	*<0.001*
Child control	Unadjusted	48.55 (17.51)	57.43 (22.22)	18.39 (<0.001)	0.19
	Adjusted	*48.50 (2.05)*	*57.82 (2.15)*	*1.18 (0.28)*	*0.02*
Child avoidance	Unadjusted	5.32 (2.61)	4.83 (2.71)	4.62 (0.04)	0.06
	Adjusted	*5.28 (0.28)*	*4.68 (0.29)*	*0.56 (0.46)*	*0.01*
Child threat interpretation	Unadjusted	6.13 (2.35)	4.88 (2.56)	25.49 (<0.001)	0.25
	Adjusted	*6.08 (0.27)*	*4.91 (0.28)*	*1.80 (0.18)*	*0.02*
Parental rating of own response					
Parental control of their child's feelings and behaviours	Unadjusted	57.14 (20.65)	62.48 (23.53)	9.17 (0.003)	0.11

Adjusted	*57.52 (2.30)*	*63.88 (2.51)*	*0.10 (0.75)*	*0.001*

[1]= Adjusted for child age and gender; SD = Standard deviation; SEM = Standard Error of the Mean

3.5.2.2 Treatment condition x time interactions

The multivariate tests of treatment condition x time interactions were significant for parental ratings of how their child would respond in the scenarios presented (Pillai's Trace = 0.19, F (4, 74) = 4.39, p = 0.003, partial η^2 = 0.19). As shown in Table 14, the univariate tests indicated that this effect was driven by ratings for how in control the mothers' predicted their child would be in each scenario (F (1, 77) = 14.74, $p <$ 0.001, partial η^2 = 0.16). Bonferroni-corrected t-tests (p-value/number of comparisons = 0.05/4 = 0.0125) showed that child control ratings were significantly higher in the treatment group compared to waitlist control group at post-treatment (t (82) = 4.14, $p <$ 0.001, d = 0.90) but not at pre-treatment (t (82) = 0.77, p = 0.44, d = 0.17), as illustrated in Figure 1. All other univariate tests of the treatment group x time interaction for maternal ratings of child response in each scenario were non-significant (all p values $\geq$ 0.096). Controlling for child age and gender did not significantly alter the results.

There was also a significant treatment condition x interaction for maternal ratings of how in control they would feel of their child's feelings and behaviour in each scenario (F (1, 78) = 6.63, p = 0.01, partial η^2 = 0.08). Bonferroni-corrected t-tests (p-value/number of comparisons = 0.05/4 = 0.0125) showed that maternal control ratings were significantly higher in the treatment group compared to waitlist control group at post-treatment (t (82) = 3.65, $p <$ 0.001, d = 0.79) but not at pre-treatment (t (82) = 1.31, p = 0.19, d = 0.29), as illustrated in Figure 2. Controlling for child age and gender did not significantly alter the results.

Table 14.

Parental ratings of child and self-response in ASQ pre and post intervention in each treatment condition (mean (SD) and adjusted[1] mean (SEM))

Parental cognition	Unadjusted/ adjusted	Pre-intervention Treatment	Waitlist	Post-intervention Treatment	Waitlist	F (p)	Partial η^2
Parental rating of child response							
Child distress	Unadjusted	65.95 (16.28)	73.96 (15.04)	57.86 (17.41)	66.98 (16.72)	0.08 (0.78)	0.001
	Adjusted	*65.47 (2.73)*	*73.97 (2.43)*	*58.36 (2.92)*	*58.36 (2.92)*	*0.06 (0.81)*	*0.001*
Child control	Unadjusted	50.13 (17.98)	47.18 (17.17)	67.78 (21.42)	49.28 (19.43)	14.74 (<0.001)	0.16
	Adjusted	*49.77 (3.06)*	*47.22 (2.73)*	*67.22 (3.21)*	*48.43 (2.86)*	*13.94 (<0.001)*	*0.16*
Child avoidance	Unadjusted	4.54 (2.76)	6.00 (2.29)	3.57 (2.05)	5.85 (2.76)	1.35 (0.25)	0.02
	Adjusted	*4.45 (0.41)*	*3.53 (0.43)*	*3.53 (0.43)*	*6.10 (0.37)*	*1.42 (0.24)*	*0.02*
Child threat interpretation	Unadjusted	5.77 (2.41)	6.43 (2.28)	4.01 (2.42)	5.56 (2.48)	2.85 (0.10)	0.04
	Adjusted	*5.66 (0.40)*	*6.50 (0.35)*	*4.10 (0.42)*	*5.72 (0.37)*	*2.86 (0.10)*	*0.04*

Parental rating of own response							
Parental control of their child's feelings and behaviours	Unadjusted	60.31 (20.46)	54.40 (20.64)	72.34 (23.92)	54.72 (20.30)	6.63 (0.01)	0.08
	Adjusted	*60.59 (3.46)*	*54.45 (3.05)*	*72.36 (3.77)*	*55.40 (3.32)*	*6.60 (0.01)*	*0.08*

[1] *= Adjusted for child age and gender; SD = Standard deviation; SEM = Standard Error of the Mean*
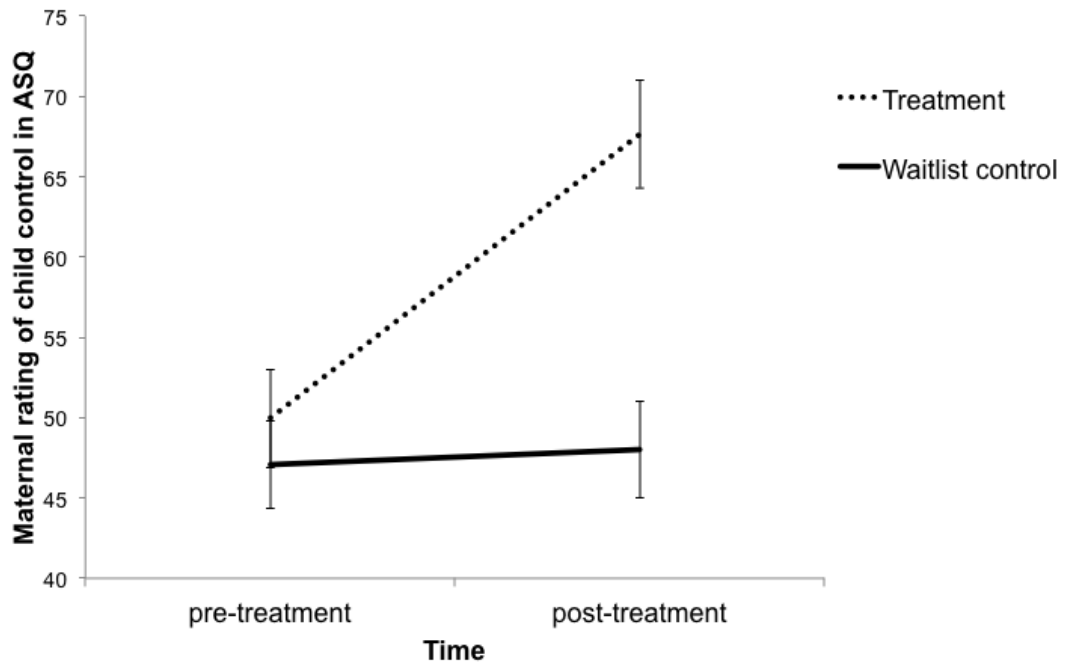
Figure 1.

Treatment condition x time interaction for maternal rating of child control in ASQ (unadjusted mean +/- SEM)
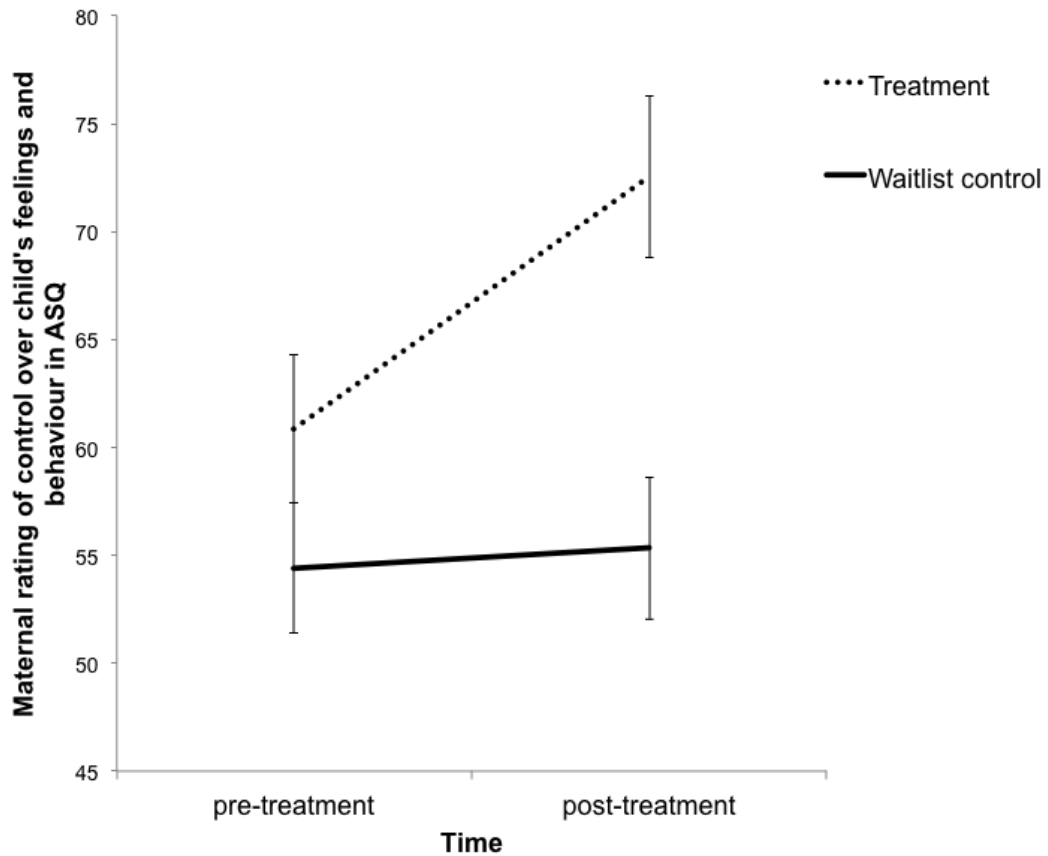
Figure 2.

Treatment condition x time interaction for maternal ratings of how in control they would feel of their child's emotional and behavioural response in the ASQ (unadjusted mean +/- SEM)

3.6 Results for Hypothesis Three

Pearson's correlation coefficients were conducted between the change in parental behaviours and cognitions with change in child anxiety measures.

3.6.1 Association with change in parental behaviours in Black Box Task

As shown in Table 15, change in parental behaviours during the Black Box Task were not significantly associated with change in any child treatment outcome

measure. This was also the case when correlations were run separately for participants within each treatment group (see Appendix 19 for Pearson correlation coefficients).

3.6.2 Association with change in parental cognitions

Parental cognitions as measured by the ASQ or maternal expectations in the Black Box Task was not significantly associated with change in any of the child treatment outcome measures (see Table 16 and Table 17). The correlation between child control on the ASQ and parent-report CAIS (r = -0.35, p = 0.004) was above the effect size that the study is powered to detect (80% power to detect r = 0.30 with p level of 0.05), however this was not significant with the Bonferroni-correction applied (critical p value for significance = 0.002). Furthermore, this may be a spurious effect as it was not in the expected direction (negative correlation; less change in the impact of anxiety was associated with greater child control in ambiguous situations), whereas as a positive correlation would be expected (i.e. greater change in the impact of anxiety associated with greater child control). No significant associations were found when the treatment groups were analysed separately (see Appendix 20 and Appendix 21).

Table 15.

Pearson Correlation Coefficients (r) for association between change in parental behaviours and change in child treatment outcome measures

Parental behaviour	SCAS		CAIS		CSR	CGI-I
	Parent-report	Child-report	Parent-report	Child-report		
Targeted positive behaviours						
Encouragement	-0.06	-0.04	0.08	0.05	-0.02	0.02
Positive modelling	-0.08	-0.05	0.01	-0.19	0.05	0.11
Threat minimisation	-0.20	-0.09	0.19	-0.18	-0.01	0.09
Vulnerability minimisation	0.05	-0.07	-0.08	0.02	0.06	0.04
Praise	0.02	0.02	0.02	-0.02	-0.11	-0.25
Targeted negative behaviours						
Parental anxiety	-0.03	-0.07	0.08	-0.05	0.10	0.05

Promotion of avoidance	-0.07	-0.22	-0.09	-0.15	0.05	-0.06
Overprotection	-0.14	0.14	0.11	0.03	0.06	-0.01
Threat augmentation	-0.07	-0.04	-0.08	0.06	0.05	0.06
Vulnerability promotion	0.04	0.10	-0.02	0.14	-0.03	-0.07
Criticism	-0.12	-0.11	-0.05	-0.15	-0.06	-0.10
Non-targeted positive behaviours						
Warmth	-0.01	0.02	0.20	0	0.16	0.22
Quality of relationship	0.03	-0.11	0.14	-0.07	0.04	0.07
Facilitation	0.04	-0.14	-0.02	-0.08	-0.14	-0.14
Engagement	-0.11	-0.09	0.07	0.05	0.09	-0.03
Sensitive responsiveness	0.06	0.01	0.11	0.03	0.04	0.02
Non-targeted negative behaviours						
Intrusiveness	-0.17	-0.06	0.09	0.07	-0.06	-0.02

| Passivity | -0.01 | -0.01 | 0.03 | -0.14 | 0.05 | 0.09 |

SCAS = Spence Child Anxiety Scale; CAIS = Child Anxiety Impact Scale; CSR = Clinical Severity Rating; CGI-I = Clinical Global Impression

– Improvement Scale

Table 16.

Pearson Correlation Coefficients (r) for association between change in parental cognitions (ASQ) and change in child treatment outcome measures

Parental cognition (ASQ)	SCAS		CAIS		CSR	CGI-I
	Parent-report	Child-report	Parent-report	Child-report		
Child distress	0.07	0.14	0.06	0.04	0.26	0.24
Child threat interpretation	0.04	0.21	-0.03	0.13	0.21	0.22
Child avoidance	-0.02	0.21	0.02	0.14	0.23	0.27
Child control	-0.18	-0.10	-0.35	-0.28	-0.28	-0.26
Maternal control over child's feelings and behaviour	-0.15	-0.09	-0.19	-0.16	-0.17	-0.16

SCAS = Spence Child Anxiety Scale; CAIS = Child Anxiety Impact Scale; CSR = Clinical Severity Rating; CGI-I = Clinical Global Impression – Improvement Scale.

Table 17.

Pearson Correlation Coefficients (r) for association between change in parental cognitions (Black Box expectations) and change in child treatment outcome measures

Parental cognition (Black Box expectations)	SCAS Parent-report	Child-report	CAIS Parent-report	Child-report	CSR	CGI-I
Child anxiety	-0.02	0.03	0.05	0.03	0.09	0.04
Child performance	0.07	-0.09	0.05	-0.22	-0.06	0.03
Child control	0.25	0.04	-0.02	-0.01	-0.05	0.02
Maternal anxiety	-0.05	0.01	-0.13	-0.06	-0.06	-0.06
Maternal control of child feeling and behaviour	-0.02	-0.05	0.04	-0.03	-0.05	0.04

SCAS = Spence Child Anxiety Scale; CAIS = Child Anxiety Impact Scale; CSR = Clinical Severity Rating; CGI-I = Clinical Global Impression – Improvement Scale

3.7 Summary of results

The key results of the study can be summarised as follows:

- Negative and positive parental behaviours (targeted by the treatment programme or not) were not significantly different after the treatment programme compared to the waitlist control.

- Parental expectations for child or self-response in the Black Box Task did not differ significantly between the treatment and waitlist control groups after treatment.

- After the treatment programme, parents perceived their child to be more in control of what they could do in situations that could be interpreted as socially or physically threatening, compared to the waitlist control group.

- Following treatment, parents perceived themselves to be able to exert more control over how their child would feel or behave in situations that could be interpreted as socially or physically threatening, compared to the waitlist control group.

- Change in parental behaviour and cognitions were not significantly associated with change in child treatment outcome.

Chapter 4. Discussion

4.1 Summary

This is the first study to examine change in a comprehensive range of parental behaviours and cognitions following treatment for children with anxiety disorders, and to consider whether change in these parent factors is associated with change in child anxiety. The treatment programme was associated with change in selective aspects of parental cognition, indicating partial support for Hypothesis Two. Specifically, after receiving treatment, parents perceived their child to be more in control of what they could do in hypothetical ambiguous scenarios. Furthermore, parents perceived themselves to be able to exert more control over how they child would feel or behave in these scenarios after treatment. However, treatment was not associated with change in parental cognitions regarding expectations of their own and their child's response to an in vivo anxiety-provoking task. Additionally, the intervention was not associated with change in either positive or negative parental behaviours that were targeted or not by the treatment programme, and so Hypothesis One was not supported. Change in parental behaviours and cognitions were not significantly associated with how successful the treatment programme was in reducing child anxiety symptomatology, and therefore Hypothesis Three was not supported.

4.2 Association of treatment with change in parental cognitions

4.2.1 Contribution to the literature

This is the first study to comprehensively assess a range of parental expectations regarding their child and own response to hypothetical and in vivo threat situations before and after PCBT. The significant increase in maternal appraisal of child and self-control in ambiguous scenarios extends the limited literature that has considered parental cognitions as an outcome in PCBT (Thienemann et al., 2006) or FCBT (Schneider et al., 2013). Past studies concluded that parental involvement in

treatment improved anxious parental cognitions, however it was unclear from the measures used what specific cognitions had changed or whether this was simply reflective of change in child anxiety symptoms. The current study overcame a number of limitations of the previous research by using validated measures of parental cognitions that have been associated with child anxiety in the literature, and using a waitlist control group instead of comparison to post-treatment (Thienemann et al., 2006) or CCBT (Schneider et al., 2013), which minimises the impact of confounding factors as possible explanations for current findings.

The current study also extends the literature on how parental cognitions is associated with child anxiety, by providing the first demonstration that treatment is associated with greater parental perception of child and own control in hypothetical threat ambiguous scenarios. Only two previous studies have included measures of child and parent control in the ASQ, and these reported on how this was associated with child anxiety symptomatology (Wheatcroft & Creswell, 2007) or maternal anxiety (Orchard et al., 2013). The current study therefore adds to the literature by highlighting that these anxious parental cognitions are malleable and that the ASQ measurement of these cognitions is sensitive to change.

This is the first study to consider change after treatment in parental cognitions related to expectations of child anxiety, performance, threat interpretation or avoidance in either hypothetical or in vivo threat situations. Treatment was not associated with change in these parental cognitions. This is inconsistent with previous research reporting increased parental perception of child competence after PCBT (Thienemann et al., 2006), however this was not measured specifically in relation to anxiety-provoking situations, and so this may account for the discrepancy in findings.

In summary, the current study extends the literature by showing that PCBT is associated with a change in anxiogenic parental cognitions specific to perceived control. The interpretation of these findings will be considered in turn.

4.2.2 Change in parental perception of control after treatment

It is encouraging that parents who received the treatment programme had a greater sense of control over their child's feelings and behaviours in hypothetical ambiguous scenarios. This suggests that the intervention increased parental self-efficacy in managing their child's anxiety. Parental self-efficacy has been defined as "the expectation caregivers hold about their ability to parent successfully" (Jones & Prinz, 2005) and is considered a specific aspect of the more global construct of personal efficacy (Bandura, 1977, 1982). There is strong evidence showing that parental self-efficacy is associated with parenting competence (see Jones and Prinz (2005) for a review). This has been found to be apparent even when their child presents with mental health difficulties, such as anxiety disorders. For example, higher parental self-efficacy was associated with less anxiety in preschool children, and this appeared to be due to the parenting practices used by parents with higher parental self-efficacy (Hill & Bush, 2001). This has been reflected in the inclusion of promoting parental self-efficacy in parenting interventions (e.g. Morawska & Sanders, 2007). Other studies have shown perceived control over child behaviour to influence parenting practices, with low parental locus of control associated with controlling and hostile parental behaviour (Bugental et al., 2002), which in turn has been associated with child anxiety (McLeod et al., 2007). Demonstrating that the current intervention improves parental self-efficacy therefore suggests that this may then translate into more effective parenting when their child is anxious, which may then reduce child anxiety.

The change in parental cognitions related to self-efficacy may be partially related to the guided parent-delivered format of the intervention which, by its very nature, aimed to skill the parents in helping to manage their child's anxiety. It may be that involving parents in a different, less direct capacity, as has often been the case in many studies of FCBT, may not enhance parental self-efficacy.

An alternative interpretation is that change in parental self-efficacy was not as a result of the treatment, but that other aspects of the treatment (delivered via parents) improved child anxiety; and then as children were less anxious it was easier for parents to feel more in control. The current study was not designed to assess the direction of effects, but it is possible that the effect runs treatment to child to parent rather than treatment to parent. However, the lack of correlation between change in parent cognitions and child anxiety might suggest that this is not the case.

4.2.3 Change in parental perception of child control after treatment

Increasing parental perception of child control in potentially threatening situations may affect child information processing style, through internalising the parental view that they can cope better with threat, which in turn could lower the child's anxiety. Cross-sectional studies have found that anxious parental cognitions are associated with greater child anxiety symptomatology (Barrett, Rapee, et al., 1996; Kortlander et al., 1997; Micco & Ehrenreich, 2008; Wheatcroft & Creswell, 2007) and anxious cognitive style (Creswell & O'Connor, 2006; Creswell et al., 2006; Creswell et al., 2005). It would therefore follow that more positive parental expectations of their child's ability to cope would be associated with less anxious cognitions and symptomatology in children. However, there are no specific studies looking at the effects of anxiety-reducing parental cognitions on children's anxious cognitive style. This interpretation of the results should be considered alongside the possibility that

the change in perceived child control after treatment might reflect that their child is now less anxious, and therefore seen as more in control.

4.2.4 No change in Black Box Task expectations after treatment

One possible reason for why there was change in certain parental cognitions in hypothetical threat scenarios but not in relation to the Black Box Task is that parents may be better able to make more informed ratings in relation to situations that their child, or at least themselves, has probably experienced before, compared to the unknown quality of the Black Box Task. Alternatively, parents may not feel that their child or themselves will be more in control when faced with the reality of exposure to an anxiety-provoking task compared to considering a hypothetical threat situation.

This is the first study to look at change in parental cognitions after treatment using measures that have shown an association between parental cognitions and child anxiety. No other studies have examined change in these measures after treatment, so direct comparisons cannot be drawn with other studies regarding measurement sensitivity. The results presented here suggest that the ASQ may be more sensitive to change after treatment, at least in terms of ratings of child and maternal control, however additional studies are needed to help support this proposition.

4.3 No association of treatment with change in parental behaviours

4.3.1 Contribution to the literature

This is the first study to measure change following treatment for child anxiety disorders in a comprehensive range of operationalised parental behaviours using observational methods. Although parental behaviour has been included as an outcome in one other study of PCBT (van der Sluis et al., 2012) and two studies of FCBT (Silverman et al., 2009; Wood et al., 2009), the current study overcame a

number of limitations in the previous research and therefore contributes the most methodologically robust and comprehensive examination of parental behaviour change in PCBT to date.

The lack of change in parental behaviours after treatment in the current study stands in contrast to past research which has shown change in parental behaviour after PCBT (van der Sluis et al., 2012) and FCBT (Silverman et al., 2009; Wood et al., 2009). Methodological reasons may help explain the discrepancy in these findings. The measurement of parental behaviour in van der Sluis et al. (2012) and Silverman et al. (2009) can be criticised for the use of self-report, which is open to reporter bias. The current study used observational measures of parental behaviours, which are less vulnerable to this measurement error and are generally considered as a more reliable methodological approach. It is possible that the positive change after PCBT in parent-reported parental behaviours found by van der Sluis et al. (2012) was representative of social desirability effects. Parents may have simply reported what they think is the 'right' or 'best' behavioural response to their child's anxiety, having perhaps learnt this from the treatment programme. The changes after FBCT in positive and negative parental behaviours found by Silverman et al. (2009) were measured using child-report, which not only is subject to reporter-bias, but may also be biased by improvements in child anxiety. The questionnaire used (the Conflict Behaviour Questionnaire; Prinz, Foster, Kent, & O'Leary, 1979) is arguably particularly vulnerable to these biases, as it measures dissatisfaction with parent behaviour and evaluations of parent-child interactions. Parent-child disagreements and interactions are very likely to occur when children are highly anxious and wanting to avoid situations.

The most methodological comparable study to the current study is Wood et al. (2009), as parental intrusiveness was measured through observations of parental behaviours in a 'stressor' task. One possible reason for why the current study did not find similar effects on parental intrusiveness is that unlike the current study, Wood et al. (2009) specifically targeted parental intrusiveness in their treatment programme. The treatment programme used in the current study did not specifically target intrusiveness and so it seems as though a targeted approach is necessary in order to see a reduction in this parental behaviour. This may also explain the lack of effect of the treatment programme on the other non-targeted parent behaviours (e.g. engagement, facilitation, passivity).

It is perhaps surprising that given the understanding of how parental behaviour and cognition may maintain child anxiety, coupled with the extensive assessment of involving parents in treatment, that this is the first study to focus on these parental factors as outcome measures. It could be speculated that other studies have also included measures of parental behaviour and cognition that they have yet to publish. Indeed this is stated to be the case with the study conducted by Cartwright-Hatton et al. (2011) and is also the case with the intervention used in the current study, which published the child anxiety outcome measures ahead of parental measures (Thirlwall et al., 2013). Furthermore, it is unknown whether a 'file drawer' effect exists, if other studies have also found a lack of parental change and therefore chosen not to publish these null results or have perhaps struggled to do so (Song et al., 2010). It may be that the results presented here are in line with unpublished results.

4.3.2 Theoretical explanation for the lack of change in parental behaviours
Whilst there are methodological issues (discussed in section 4.3.3) that may account for the lack of difference in parental behaviour change after treatment compared to a

waitlist control, an alternative interpretation is that parental change does not occur after PCBT. Certainly the reduction in the number of children meeting criteria for an anxiety diagnosis after treatment would support the proposition that child change can occur in the absence of parental change, thus questioning parental change as an important mechanism underlying the effect of PCBT. However, not all children in the treatment group recovered from their diagnosis, and it could be that child treatment outcome would be enhanced in the presence of greater parental change.

The notion that change in parental behaviour is not necessary for child anxiety change stands in contrast to the evidence that parental behaviour is associated with child anxiety. However, most of this research has been cross-sectional and there is a paucity of experimental studies examining a causal relationship between parental behaviours and child anxiety. Although the experimental studies that do exist suggest that manipulating parent behaviours does impact on child anxiety, these have been conducted on non-clinical samples (de Wilde & Rapee, 2008; Thirlwall & Creswell, 2010), and the effect in anxiety-disordered children is unknown. It should also be acknowledged that the association between parental behaviours and child anxiety has not been consistently found. Although methodological heterogeneity and shortcomings in the literature may partly account for this inconsistency, it may be that the association between parental behaviour and child anxiety is not so robust that introducing change in parental behaviour would necessarily result in reduced child anxiety. Furthermore, there are gaps in the knowledge of how certain parental behaviours (e.g. encouragement, threat minimisation or vulnerability minimisation) may be related to child anxiety. The current study suggests that there may be less of an association between these relatively unexplored parental behaviours and child anxiety.

4.3.3 Methodological factors contributing to lack of change in parental behaviours

Various methodological reasons may account for the lack of difference in parental behaviour change after treatment compared to a waitlist control. In terms of the treatment programme, it could be argued that the aspects of the programme that targeted parental change were not sufficiently 'strong' enough to result in parental change. The intervention was a low-intensity treatment programme and perhaps less parental change may be realised from this approach compared to a more intensive or individualised programme. Furthermore, parental change was only one aspect of what was arguably a 'busy' intervention. It may be that the parents engaged more with the implementation of the CBT strategies compared to monitoring and changing their own behaviour. Parents may have found it comparatively easier to coach their child through a graded exposure programme as opposed to change what are likely to be ingrained ways of interacting with their child. This cannot be examined, as adherence to the parental behaviour change aspects of the programme was not measured. Future studies should include measures of programme adherence in order to exclude this as a potential explanation for null results. Interventions that specifically focus on parental behaviour change in the absence of other CBT strategies (e.g. graded exposure) could also to help unpick this.

Effects on parental behaviour may be seen in a longer follow-up period than in the current study. The lag time between pre and post treatment assessment was approximately 12 weeks, which is comparable to the time period of other studies examining change in parent behaviours after treatment (Silverman et al., 2009; van der Sluis et al., 2012; Wood et al., 2009). However, Silverman et al. (2009) also reported that the improvements in parental behaviours post treatment continued to improve at a 12-month follow-up, whilst these had plateaued in their comparison

condition (CCBT). It may be that change in parental behaviours would be found by the current treatment in a longer follow-up period.

Parents were not recruited into the study on the basis of exhibiting high levels of negative parent behaviours and low levels of positive parent behaviours. The mean values for these at baseline showed that parents had low scores for negative behaviours and scored in the mid range for positive parental behaviours. There was therefore less scope for change in negative parental behaviours in the Black Box Task. Whilst there was more possibility for change in positive parent behaviours, these have been shown to have a weaker association with child anxiety compared to negative parental behaviours (e.g. McLeod et al., 2007). Such low scores on the negative behaviours could account for why there was little change in these after the intervention due to 'floor effects'.

Parents in the current study were specifically selected not to have an anxiety disorder themselves. One possibility is that there may be more scope for change in parental behaviours and cognitions in anxious mothers, as some studies have reported differences between anxious and non-anxious mothers in these parental factors (e.g. Creswell et al., 2013; Orchard et al., 2013), however others have not (e.g. van der Bruggen et al., 2008). It is important to note that differences in parental behaviours between anxious and non-anxious mothers have not been found across all parental behaviours measured. For example, Creswell et al. (2013) reported differences between anxious and non-anxious mothers on only four out of ten parental behaviours, using the same paradigm and observational measures as the current study. Furthermore, most of the literature on parental behaviour and child anxiety (as reviewed in section 1.3) do not report the anxiety status of the mother or consider this as a potential moderator of the association between parental behaviour

and child anxiety. Therefore clear conclusions cannot be drawn from the current evidence base on how parents with an anxiety disorder themselves may interact with their child differently to parents without an anxiety disorder, or how this may then moderate the effect of an intervention on changing parental behaviour. Arguably it is the parental behaviours that the parents engage in, rather than their diagnostic status, that may be a more relevant moderator of the effect of an intervention on parental behaviour change. Despite this, it could be that for some behaviours in which there is a difference between anxious and non-anxious parents e.g. modelling anxiety (Creswell et al. (2013), the effect of the intervention is modified in that greater change from the intervention in this particular parental behaviour may be recognised in anxious parents. This may be especially the case if the intervention was not specifically focused on just the child's anxiety, but also targeted parental anxiety.

It is possible that parental behaviour measured under laboratory conditions is not a reasonable enough proxy for parental behaviours outside of the laboratory. Measurement of parental behaviours in more naturalistic settings or in situations specific to the child's anxiety diagnosis may reveal change in parent-child interactions after treatment. On average, children were only rated as slightly anxious in the task at both time points, albeit higher at the second exposure, and so it cannot be claimed that the parental behaviours observed are reflective of how parents would interact with their child if they were in a high state of anxiety, which may be more relevant to show a change in after treatment. Future studies could consider examining treatment effects on parent-child interactions during graded exposure towards the child's diagnosed feared stimulus or situation.

The Black Box Task could be a better proxy for some anxiety disorders compared to others. Children with a specific phobia may respond differently in this task compared

to children with social anxiety disorder as it may be better aligned to their actual diagnosis, e.g. they may believe that the box contains a feared stimulus. There was a range of different primary anxiety disorders in the sample, and numbers were not sufficient to separate this out and consider parental behaviour change in each diagnostic category. However, it should be noted that most children met criteria for more than one anxiety diagnosis and specific phobia was a common comorbidity (59.1% of children had a diagnosis of specific phobia).

Another possibility is that the coding scheme used to code the parental behaviours in the Black Box Task was not sensitive enough to detect change in parental behaviour. This is the first study to use this paradigm to measure parental behaviour change, although it has been successfully used to detect differences in parent behaviours between anxious and non-anxious mothers with anxious children (Creswell et al., 2013) and subtypes of anxious mothers (Murray et al., 2012). Other studies have proposed that the bidirectional nature of parent-child interactions is important to consider when examining the effects of parental behaviours on child anxiety (Nelemans et al., 2013; Williams, Kertz, Schrock, & Woodruff-Borden, 2012). The coding scheme used mainly considered the maternal behaviours from a unidirectional framework (i.e. did not consider child response, with the exception of quality of relationship). Change in parental behaviour may be found in paradigms that look at both the parent and child dimensions of the interaction. It could also be that analysing the parent behaviours as an average across the whole duration of the Black Box Task diluted critical parent-child interactions.

Compared to discussion-based tasks, the Black Box Task may not allow sufficient opportunities for observation of parent behaviours that require more verbal responses e.g. those communicating fear-relevant information (threat augmentation,

threat minimisation, vulnerability promotion, vulnerability minimisation). Future studies should assess parental behaviours in a variety of different formats to maximise opportunities to observe all behaviours of interest.

4.3.4 Change in parental behaviour over time

There was little difference in parental behaviours during the Black Box Task between the first and second time the family encountered it. After controlling for child age and gender, mothers were found to be less encouraging, less engaged and less sensitive in their responsiveness at the second exposure to the task compared to the first. The Black Box Task could be conceptualised as an exposure task, where mothers were essentially learning to tolerate their child's response in an anxiety-provoking task. It may be that at the second exposure, mothers were less forgiving if their child struggled to do the task, because the child had managed it before and discovered that nothing scary was actually in the box. Indeed, when age and gender were not controlled for, parents expected their child to be less anxious, perform better and have greater control in the task. However, it is important to note that when the parents gave these ratings, they were not aware of the sounds effects used in the second assessment, that were intended to retain the anxiety-provoking nature of the task (and which appeared to be effective on the basis that children were observed to be more anxious in the second exposure compared to the first). However, generally there was little difference in parental behaviours at the first and second exposure to the Black Box Task.

4.3.5 No change in parental behaviour in the presence of change in parental cognitions

This study demonstrated change in certain anxious parental cognitions but no change in parental behaviours after treatment compared to a waitlist control. One

explanation for this could be that change in parental self-efficacy occurs before change in parental behaviours, and the post-treatment assessment was not a long enough follow-up period for change in behaviour to be observed. Future studies are needed that assess parental cognitions and behaviours over a longer follow-up period. An alternative explanation could be that when faced with real anxiety provoking situations like the Black Box Task, changes to parental cognitions cannot be sustained and this impacts on the behavioural change. Or it could be that cognitions and behaviour might not be as closely connected in this context; parents might think of their child and themselves to be more in control in anxiety-provoking situations but this may not translate into more effective ways of responding to their child's anxiety.

4.4 Association between parental change and child treatment outcome

4.4.1 Contribution to the literature

This is the first study to consider how change in parent behaviour and cognition after PCBT is associated with child treatment outcome. It contributes the first demonstration that parental change in PCBT is not associated with child treatment outcome. It may be that significant associations would be found if there were a greater impact of PCBT on parental behaviours and cognitions. However, this explanation is not applicable in the case of certain measures of parental cognition for which treatment effects were found.

One possibility is that there is not a dose-response effect of parental behaviour and cognition change on child anxiety change. Anxiety can be conceptualised as oversensitivity to external threat and stress. Treatment for anxiety disorders essentially involves learning to tolerate extreme responses, in part through a process of habituation. Parents could play an important role in helping with this process,

although it may not be directly translatable into a dose-response effect. It may be that greater adherence to the graded exposure aspect of the programme would be more likely to be associated with reduced child anxiety in a dose-response manner.

The current study only provided a relatively short period of time for parents to change their behaviour and cognitions, which are likely to have been relatively stable throughout their child's life. If children learn how to react in potentially anxiety-provoking situations from their parent, e.g. through parents modelling anxious behaviour, then it may be unlikely that this learning would be undone or reversed within the relatively short period of 12 weeks. Previous studies have found that parental modelling of anxiety towards a stranger is associated with avoidant and anxious responding in children, which persists after subsequent parental modelling of positive affect towards a stranger (Gerull & Rapee, 2002; Murray et al., 2008). This implies that whilst parental behaviour and cognition can be instrumental in establishing child's anxious responding, it may be less effective in reversing this.

4.5 Study limitations

This study has several limitations that should be acknowledged. One criticism is that the sample did not include fathers. This was not intentional, as it was the child's primary caregiver that was invited to participate, which in all cases was the mother. Others have found that mothers spend more time with their children compared to fathers (Lamb, 2000) and are usually the primary caregiver (Pleck, 1997). However, fathers have been postulated to play an important role in the development of anxiety disorders in recent models (Bogels & Phares, 2008; Bogels & Perotti, 2011). Differences in parenting practices have been found between mothers and fathers, such that fathers were more encouraging of independence and risk-taking behaviour in their children, whilst mothers exhibited more controlling behaviour (Bogels &

Phares, 2008; Paquette, 2004). In addition to this, differences in the association between child anxiety with mother and father behaviours and cognitions have been found. This appears to be particularly evident in parental modelling of anxious behaviour, as studies have found that mothers' but not fathers' anxious modelling is associated with child anxiety (Merckelbach, Muris, & Schouten, 1996; Muris et al., 1996). However, others have found stronger associations between parental expressed anxiety and child anxiety and avoidance in fathers compared to mothers (Chorpita et al., 1996). The lack of research that has included fathers means that overall there is an incomplete understanding for how both parents are implicated in the development of anxiety disorders and even less is known about how treatment may impact upon behaviours and cognitions in both parental genders. The current study suffers from this limitation and it is clear that future studies should endeavour to include both mothers and fathers.

It could be argued that consistent and joint parenting is more important than the individual effects of one parent versus another. Alternatively, it may be that the primary caregiver is the most important to show an effect of the treatment on, as the child is more exposed to their responses and therefore it could be that they are most influenced by them.

The age range of the sample was limited to children aged 7 to 12 years old and so it is not known whether the results reported would be applicable to younger children or adolescents. Wood et al. (2009) found that reducing parental intrusiveness was only effective in reducing young children's (6-9 year olds) anxiety and was not effective in children aged 10-13 years old. It may be that improving some of the parental behaviours and cognitions measured in the current study would have differential

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effects on childhood anxiety at various stages of development. However, the current study did not find that age moderated the findings.

The results should be interpreted in the context of the fact that this was a low-intensity treatment. Although it was effective in reducing the number of children meeting diagnostic criteria for an anxiety disorder (Thirlwall et al., 2013), it may be that different parental factors would be related to change in child anxiety symptomatology in those with more complex presentations and for those for whom other systemic factors may play a role in maintaining the child's anxiety.

The sample was not specifically selected because parents were engaging in anxiety-enhancing behaviours or cognitions. This is a limitation because baseline scores for these were in fact low which as explored previously, may account for the null findings for Hypothesis One. It could be that the treatment would have greater effect on reducing anxiogenic parental behaviours and cognitions if parents had been selected on this basis.

The inclusion of children with a range of anxiety diagnoses, rather than limiting the sample to a particular anxiety presentation makes the assumption that effects of PCBT on parental behaviours and cognitions would be equivalent across anxiety disorders. The study was not powered to consider parental effects separately for each primary anxiety diagnosis and so differential effects could not be explored. However, this is not considered to be a significant issue given the limited theoretical differences between anxiety disorders in childhood, the high comorbidity between the disorders which meant most children in the study had at least one other diagnosed anxiety disorder, coupled with the fact that the majority of RCTs of treatment for child

anxiety disorders include a range of presentations, plus the paradigm used for assessing parental behaviours and cognitions was not diagnosis-specific.

As with all studies into parental cognition, this study used parent self-report to measure parental expectations of their child's and own response in threat situations. It has been argued that individuals have limited access to their cognitive processes and response biases may operate (Nisbett & Wilson, 1977). For example, the effects of social desirability could result in inflated reports of parental self-efficacy (Jones & Prinz, 2005) which may be particularly apparent in parents after participating in an intervention in which the overt aim is to skill them in managing their child's feelings and behaviours. However, the lack of change across all aspects of parental cognitions suggests that social desirability is an unlikely explanation for the results.

The current study used a waitlist control group as a comparison, rather than a CCBT comparison group, as used in some RCTs of FCBT. This design was appropriate to test the hypotheses in the current study, as non-significant differences between PCBT and CCBT might occur if child anxiety is improved in CCBT, which then leads to improvements in how the parents interact and think about their child. However, including CCBT as a comparison group in addition to a waitlist control group would have allowed an exploration of whether PCBT is associated with greater change in parent behaviour and cognition compared to when the child is treated without parental involvement.

The measures included in this study were pre-determined, as the data had already been collected as part of the larger study by Thirlwall et al. (2013). On reflection, additional measures of parent-child interaction across a range of tasks, including

more naturalistic settings, may have provided a more robust paradigm less open to the criticisms of the Black Box Task previously described.

Additionally this was a completers only sample, which introduces a bias to the results as those who completed the study may be quite different in a variety of ways to those who chose to discontinue their involvement in the study. Non-completers may have not responded to the treatment in the same way as the completers, possibly either in that they did not benefit from the intervention or they experienced early treatment gains and did not feel continued participation was necessary. Children in the waitlist control group may have recovered from their anxiety difficulties in the absence of intervention, hence removing the need to continue their involvement in the study. There also could be many reasons for why families did not return for the post-intervention research assessment, despite completing treatment. Examples may include how well their child responded to the treatment or wider systemic factors that could complicate attendance (e.g. external stressors on the family). The results regarding change in parental behaviour and cognition observed in the current completer sample therefore may not generalise to a non-completer sample.

Finally, the sample was restricted to a predominantly white, middle class well-educated group and so the results may not generalise to families from other sociodemographic and ethnic backgrounds. The literature on parental behaviour and cognition with child anxiety generally suffers from a lack of consideration for cultural and ethnic differences, and consideration of this in future studies would be important to obtain a complete understanding of parental behaviour and cognition influences on child anxiety disorders and the potential for treatments to change these parental factors.

4.6 Implications

The results of this study have several implications. The finding that guided parent-delivered CBT increases parental perception of their ability to control their child's feelings and behavior may increase parental confidence and competence in implement the CBT strategies of the programme with the child. If a parent feels less able to do this, then it may be more difficult for them to put CBT strategies into place with their child. Increasing parental self-efficacy may enhance their adherence to the treatment programme or perhaps indirectly communicate a sense of containment to the child whilst they are facing their fears e.g. during the graded exposure. It is suggested here that PCBT may therefore be a good choice of intervention for parents who have low parental self-efficacy.

The finding that child anxiety can be significantly reduced in the absence of parental behaviour change suggests that targeting parental behaviour in treatment may not be necessary, at least not for families in which the parents are not exhibiting strong anxiogenic parental behaviours prior to treatment. This is encouraging as changing parental behaviours may not always be possible, especially in the context of wider systemic complicating factors. It also suggests that it would not necessarily be cost-effective to target interventions at 'negative' and 'positive' parental behaviours. However, that is not to say that PCBT is not a cost-effective intervention, in fact there is evidence to suggest that it is (Creswell et al., 2010), but that focusing on skilling parents to deliver CBT techniques may be a more efficient use of clinical resources.

Alternatively, for families in which various parental behaviours are formulated to be implicated in maintaining their child's anxiety, it may be important to target these specific behaviours in treatment. A reliable and time-effective assessment tool may help facilitate this, either as a stand-alone measure or to supplement a clinical

assessment interview. The lack of an association with the current intervention and parental behaviour change suggests that this manualised treatment programme may need to be adapted to include particular modules that provide a more intensive focus on the salient parental behaviours for each family. Monitoring change in these parental behaviours during treatment and adapting the intervention accordingly is likely to maximise parental change from the intervention. It should be acknowledged that the current intervention was designed to be a low-intensity, first line treatment, and that these suggested modifications arguably detract from this intention. Nevertheless, the results of the current study imply that in order to bring about meaningful change in how parents interact with their anxious child, a more intensive approach may be required.A substantial implication of the findings is that more research is needed to fully understand the change in parental behaviours and cognition that can occur after PCBT. The possibility that methodological factors may at least partially explain the lack of change in parental behaviours, means that the potential for PCBT to change parental behaviours should not be discounted.

4.7 Directions for future research

The current study paves the way for future avenues of research into change in parental behaviours and cognitions after PCBT. One question that remains unanswered is whether negative parental behaviours and cognitions would be reduced after PCBT in parents who are engaging in anxiety-enhancing behaviours and cognitions before treatment. Future studies are needed that recruit parents specifically on the basis of their parenting practices at baseline. As discussed previously, greater change from this treatment format could possibly be brought about through tailoring the intervention to include modules that address the specific anxiogenic parental behaviours and cognitions operating within the family. This could be extended to preventative studies, in which parents of non-clinically anxious

children who exhibit anxiogenic parental behaviours and cognitions could be targeted for intervention using a similar self-help format.

Parental adherence to components of the treatment programme would be useful to monitor in future studies, to help ensure that null findings are not the product of a lack of engagement with aspects of the treatment targeting parental behaviours and cognitions.

Studies that include follow-up assessments are needed to examine the longer-term effects of a guided self-help programme on parental behaviour and cognition. This would indicate whether the observed effects on parental cognition are maintained, or whether change in parental behaviour can be recognised later on. This could be considered alongside the trajectory of the child's anxiety presentation. Qualitative studies may help to reveal what aspects of the intervention the parents feel they are continuing to implement and what their perceived barriers to change are, especially with regards to the way they interact with and think about their child.

Future studies could consider adapting this intervention towards younger or older (adolescent) age groups. It could be anticipated that PCBT would have a greater influence on child anxiety when the parent is most prominent in their child's life (i.e. preschool), however the potential for change in parent behaviour and cognition across the full age range of childhood and adolescence is currently unknown.

Due to the methodological factors that may have contributed to the observed null results with regards to parental behaviour change associated with the intervention, future studies should incorporate a range of tasks that are as closely paralleled to the child's anxiety presentation as possible. One approach that may achieve this is the

Behavioural Approach Test (BAT), in which the parent is present as their child approaches their feared stimulus. As this is more suited to some anxiety presentations than others (e.g. phobias), it may be that a first step would be to recruit children with the same primary anxiety diagnosis, rather than use a heterogeneous sample as in the current study.

The current study also adds to the inconsistency regarding whether change in parental behaviour and cognition drives change in child anxiety, or vice versa. Future studies should be designed that permit exploration of the direction of effects. Including multiple time points for assessment of parental behaviour and cognition and child anxiety throughout the intervention and during follow-up, rather than just at the end of treatment, would permit mediation analysis and help examine the point at which change may occur and in what direction. In addition to this, sequential analysis of parent-child interactions would help elucidate treatment effects on the reciprocal nature of the relationship between child anxious behaviours and parental response.

4.8 Summary and conclusions

In summary, this is the first study to examine how a guided parent-delivered CBT programme for anxious children is associated with a comprehensive range of observational measures of parental behaviours and cognitions. It therefore provides the most methodologically robust investigation to date. Overall there was a very limited association of the intervention on parental factors, that was specific to improved parental self-efficacy and enhanced parental perception of child control in potentially anxiety-provoking situations. Such little change in parent behaviours and cognitions, in the context of significant improvement in child anxiety diagnostic status, questions whether parental change is necessary for successful treatment of

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child anxiety disorders. This area of research is clearly at an early stage and there are methodological shortcomings of the current study, which hinder the strength of the conclusions that can be drawn. With a growing understanding of how parents are implicated in the development and maintenance of childhood anxiety disorders, which has led to an appetite for involving parents in treatment, it would seem important that future research continues to explore the possible changes in parental factors that may result from these, in an effort to maximise child treatment outcome.

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Appendices

1. Summary of studies examining the effectiveness of F-CBT

2. Ethical approval documentation

3. Information sheets and consent forms

4. Items included in the Black Box Task

5. Session by session outline of guided parent-delivered CBT programme

6. Sociodemographic Questionnaire

7. Spence Children's Anxiety Scale - Parent report (SCAS-P) and Child report (SCAS-C) (Not included due to copyright restrictions)

8. Child Anxiety Impact Scale – Parent Report (CAIS-P) and Child report (CAIS-C)

9. Clinical Global Impression - Improvement Scale (CGI-I)

10. Short Mood and Feelings Questionnaire (SMFQ) – Parent Report (SMFQ-P) and Child report (SMFQ-C)

11. Conduct Problems Subscale of Strengths and Difficulties Questionnaire (SDQ)

12. Coding scheme for behaviours in Black Box Task (Not included here due to copyright restrictions)

13. Inter-rater reliability for Black Box Task data

14. Black Box Task Parental Expectations Questionnaire

15. Ambiguous Situations Questionnaire (ASQ)

16. Intercorrelations between parental behaviours in Black Box Task

17. Intercorrelations between parental expectations in Black Box Task

18. Intercorrelations between parent cognitions (ASQ)

19. Pearson correlation coefficients between parental behaviour change and child anxiety symptom change for each treatment group

20. Pearson correlation coefficients between parental cognition (Black Box Task Expectation) change and child anxiety symptom change for each treatment group

21. Pearson correlation coefficients between parental cognition (ASQ) change and child anxiety symptom change for each treatment group

Appendix 1.

Summary of studies examining the effectiveness of PCBT and FCBT

Paper	Sample	PCBT/ FCBT	Study Design	Format	Specifics of parent intervention	Parent measures	Child anxiety outcome	Parent outcome
Barrett, Dadds & Rapee (1996)	N=79 7-14y	FCBT	RCT CCBT vs. FCBT vs. WLC 6m & 12m FU	12 sessions Individual	Parent + child sessions & 4 parent-only. Trained in reinforcement strategies, parental anxiety, problem solving	-	FCBT >CCBT post Tx and both FU	-
Barrett (1998)	N=60 7-14y	FCBT	RCT CCBT vs. FCBT vs. WLC 12m FU	12 sessions Group	Parent & child group sessions Reinforcement strategies, parental anxiety, communication and problem solving.	-	FCBT>CCBT at post Tx and FU	-
Barrett et al. (2001)	N=52 14-21y	FCBT	6y FU of Barrett et al. (1996)	12 sessions Individual	Parent + child sessions & 4 parent-only. Trained in reinforcement strategies, parental anxiety, problem solving	-	FCBT=CCBT at 6y FU	-
Bodden et al. (2008)	N=128 8-18y	FCBT	RCT CCBT vs. FCBT	13 sessions Individual	Parental anxiety, anxious modelling, parental overcontrol, criticism, lack of monitoring,	-	CCBT>FCBT post Tx, CCBT=FCBT 3m FU	-

Study	N / Age	Type	Design	Sessions	Description		Outcomes	
			vs. WLC. 3m FU		dysfunctional beliefs, communication, parental conflict.			
Cartwright-Hatton et al. (2011)	N=74 2-9y	PCBT	RCT PCBT vs. WLC. 12m FU	10 sessions Group	Behaviour management skills, emphasis on calm, clear & consistent parenting, teaching CBT techniques for managing child's anxiety.	-	Decreased anxiety in PCBT>WLC post Tx and FU	-
Cobham et al. (1998)	N=67 7-14y	FCBT	RCT CCBT vs. FCBT 6m FU	10 sessions Group	4 sessions of parental anxiety management	-	Trend FCBT>CCBT pot Tx & 6m FU	-
Cobham et al. (2010)	N=60 7-14y	FCBT	3y FU of Cobham et al. 1998	10 sessions Group	4 sessions of parental anxiety management	-	FCBT>CCBT	-
Dadds et al. (1997)	N=128 7-14y	FCBT	RCT FCBT vs. WLC 6m FU	10 sessions Group	3 parent-only sessions child management skills, modelling and encouragement, parental anxiety management.	-	FCBT=WLC at post Tx but FCBT>WLC at 6m FU	-
Hirshfeld-Becker et al. (2010)	N=64 4-7y	FCBT	RCT FCBT vs. WLC 1y FU	20 sessions Individual	Modelling and reinforcing coping techniques, parental anxiety management, parent skills training	-	FCBT>CCBTMaintained at 1y FU	-
Leong et al. (2009)	N=27 7-14y	PCBT	RCT PCBT	12 weeks Bibliothera	Parent-directed bibliotherapy:	-	PCBT=CCBT post Tx and 3 &	-

Study	N / age	Tx	Design	Format	Content		Results	
			vs. CCBT 3 & 6m FU	py + telephone contact	Psychoeducation, management of child anxiety, own anxiety management		6m FU	
Lyneham & Rapee (2006)	N=100 6-12y	PCBT	RCT PCBT (3 levels parent contact) vs. WLC. Post Tx & 12m FU	12 weeks Bibliotherapy + 9 telephone or email therapy sessions or client-initiated contact	Parent self-help book. Specified activities to do with their child.	-	PCBT>CCBT (Telephone sessions most effective) for reduction child anxiety at post Tx and maintained FU	-
Manassis et al. (2002)	N=78 8-12y	FCBT	RCT Group FCBT vs. individual FCBT	12 sessions Group/ Individual	Management of child anxiety, problem solving.	-	Group FCBT = individual FCBT	-
Mendlowitz et al. (1999)	N=62 7-12y	FCBT	RCT FCBT vs. CCBT vs. PCBT vs. WLC	12 sessions Group	PCBT & FCBT = Unspecified behavioural strategies, problem-solving	-	PCBT>WLC FCBT>CCBT and PCBT	-

Nauta et al. (2001)	N=18 8-15y	FCBT	RCT CCBT only vs. CCBT + FCBT 3m & 15m FU	12 sessions Individual	Cognitive parent training: psychoeduation, problem solving, positive reinforcement, challenging dysfunctional parental cognitions	-		CCBT = CCBT+FCBT	-
Nauta et al. (2003)	N=79 7-18y	FCBT	RCT CCBT vs. CCBT + FCBT vs. WLC 3m FU	12 sessions Individual	Cognitive parent training: psychoeducation, behavioural management, encouragement coping behaviour & independence, problem solving, challenging dysfunctional parental cognitions	-		CCBT = CCBT+FCBT	-
Rapee et al. (2005)	N=146 3-5y	PCBT	RCT PCBT vs. WLC 12m FU	6 sessions Group	Anxiety prevention programme. Psychoeducation, parent management techniques including overprotection, cognitive restructuring parental worries	-		PCBT>WLC at 12m FU	-
Rapee et al. (2006)	N=267 6-12y	FCBT & PCBT	RCT group FCBT vs. WLC vs. PCBT	12 weeks	PCBT=Self-help book covering anxiety management skills & implementation with child	-		PCBT>WLC FCBT>PCBT FCBT>WLC at post Tx and 3m FU	-

Schneider et al. (2013)	N=64 8-13y	FCBT	3m FU RCT FCBT vs. CCBT 1y FU	16 sessions Individual	Psychoeducation, parental response to child anxiety, coping strategies	Dysfunctional parental cognitions	FCBT=CCBT	Improvement in dysfunctional parental cognitions in both FCBT and CCBT
Shortt et al. (2001)	N=71 6-10y	FCBT	RCT FCBT vs. WLC 1y FU	12 sessions Group	Parental anxiety management, reinforcement strategies, contingency management strategies, cognitive skills in unhelpful thought challenging, problem solving.	-	FCBT>WLC post Tx & 1y FU	-
Silverman et al. (1999)	N=56 6-16y	FCBT	RCT FCBT vs. WLC 3m, 6m, 12m FU	8 sessions Group	Parent-child contingency management, encouragement of child self-control skills	-	FCBT>WLC, Maintained at 3m, 6m, 12m FU	-
Silverman et al. (2009)	N=119 7-16y	FCBT	RCT FCBT vs. CCBT 1y FU	12-14 sessions Individual	Parent + child sessions + 3-4 parent only sessions. Targeted child behaviour, parent-child communication & problem solving skills	CBQ: +ve/-ve beh & parent-child conflict	FCBT=CCBT post-Tx & 1y FU	CCBT: more +ve appraisals parent behaviour & relationship. Maintained

								FU. FCBT: improvement +ve/-ve beh only pre to post Tx. Maintained FU.
Siqueland et al. (2005)	N=11 12-18y	FCBT	RCT CCBT vs. FCBT 6-9m FU	16 sessions Individual	Attachment based family therapy.	-	FCBT=CCBT	-
Spence et al. (2000)	N=50 7-14y	FCBT	RCT CCBT vs. FCBT vs. WLC 1y FU	12 sessions Group	Model & reinforce practice of skills, encouragement facing fears, ignore anxious behaviour	-	Trend FCBT>CCBT at post Tx and 1y FU	-
Thienemann et al. (2006)	N=24 7-16y	PCBT	Pre and post PCBT	12 sessions Group	One session on helpful & unhelpful parenting strategies	Weekly self-reported attitudes towards child	Decreased anxiety	Improvement in parental attitudes over time, sig change started at week 6.
Thirlwall et al. (2013)	N=194 7-12y	PCBT	RCT 4 PCBT vs. 8 PCBT	4 or 8 sessions Individual	Guided parent-delivered CBT: Psychoeduation, responding to child	-	8 PCBT>4 PCBT & WLC 4 PCBT=WLC Maintained at	-

			vs. WLC 6m FU		anxiety, encouragement of facing fears and independence, problem solving, anxious thought challenging, modelling.		6m FU	
Toren et al. (2000)	N=24 6-13y	FCBT	RCT FCBT vs. WLC 12m & 36m FU	10 sessions Group	Parent & child taught CBT techniques, no specific parental component	-	FCBT>WLC maintained 12m & 36m FU	-
Van der Sluis et al. (2012)	N=26 4-7y	PCBT	Pre and post PCBT	4 x 2h group sessions + 4 x phone sessions over 4 weeks	Taught parenting strategies to help manage anxious child.	Self-reported parenting strategies	Decrease in anxiety & behavioural inhibition	Increase in use of +positive reinforcement, modelling, reassurance. Decrease in reinforcement of dependency
Waters et al. (2009)	N=60 4-8y	PCBT + FCBT	RCT FCBT vs. PCBT vs. WLC	10 sessions Group	Psychoeducation, management of child anxiety, parental coping, communication and problem-solving skills	-	PCBT=FCBT PCBT>WLC FCBT>WLC	-
Wood et al. (2006)	N=40 6-13y	FCBT	RCT FCBT vs. CCBT	12-16 sessions Individual	Parent communication training, focus on intrusiveness & autonomy granting	-	FCBT>CCBT	-

| Wood et al. (2009) | N=35 6-13y | FCBT | RCT FCBT vs. CCBT 1y FU | 12-16 sessions Individual | Child (25-30min) then Parent session (25-30min) then joint (10-15m) Targeted intrusiveness, autonomy granting, increasing privacy | Composite measure of Intrusiveness from observational lab measure (belt buckling), child & parent report, parent-report of assistance of child with self-help routines. Taken pre & post but not FU | FCBT>CCBT, stronger in adolescents | FCBT>CCBT in decline in intrusiveness. Mediation analysis – for early adolescents, FCBT reduces intrusiveness which leads to reduced anxiety. |

CBT = Cognitive Behavioural Therapy, CCBT = child CBT, FCBT = child + parent CBT, PCBT = parent-only CBT, WLC = waitlist control, RCT = randomised controlled trial, y = years, m = months, Tx = Treatment, FU = follow-up

Appendix 2.

Ethical Approval Documentation

Ethical approval documentation from Department of Psychology, Royal Holloway University of London

Please note that ethical approval confirmation is granted solely through an email as the system is web-based.

NHS

National Research Ethics Service
Berkshire Research Ethics Committee

Building L27
University of Reading
London Road
Reading
RG1 5AQ

Tel: 0118 918 0550 / 0551
Fax: 0118 918 0559

09 June 2009

Professor Peter Cooper
Professor of Psychopathology
University of Reading
School of Psychology
Reading, Berkshire
RG6 6AL

Dear Professor Cooper

Study title:	**Guided Self-help Treatment of Child Anxiety Disorder: A Randomised Controlled Trial**
REC reference:	**07/H0505/157**
Amendment number:	**1.6**
Amendment date:	**14 May 2009**

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Document listing changes to the protocol text		14 May 2009
Notice of Substantial Amendment (non-CTIMPs)	1.6	14 May 2009
Covering Letter		14 May 2009

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

This Research Ethics Committee is an advisory committee to South Central Strategic Health Authority

The National Research Ethics Service (NRES) represents the NRES Directorate within the National Patient Safety Agency and Research Ethics Committees in England

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

07/H0505/157:	Please quote this number on all correspondence

Yours sincerely

[signature]

Ms Lavenda Lee
Assistant Co-ordinator

E-mail: scsha.berksrec@nhs.net

Enclosures: *List of names and professions of members who took part in the review*

Copy to: *Dr Mike Proven, University of Reading*

NHS

National Research Ethics Service

Berkshire Research Ethics Committee
Building L27
University of Reading
London Road
Reading
RG1 5AQ

Telephone: 0118 918 0556
Facsimile: 0118 918 0559

16 November 2007

Professor Peter Cooper
Professor of Psychopathology
University of Reading
School of Psychology
University of Reading
Reading, Berkshire
RG6 6AL

Dear Professor Cooper

Full title of study:	**Guided Self-help Treatment of Child Anxiety Disorder: A Randomised Controlled Trial**
REC reference number:	**07/H0505/157**

Thank you for your letter of 12 November 2007, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Application	1	07 September 2007
Investigator CV		07 September 2007
Protocol	1.1	21 August 2007
Covering Letter		07 September 2007

This Research Ethics Committee is an advisory committee to South Central Strategic Health Authority

The National Research Ethics Service (NRES) represents the NRES Directorate within the National Patient Safety Agency and Research Ethics Committees in England

Summary/Synopsis	1	21 August 2007
Letter from Sponsor		06 September 2007
Interview Schedules/Topic Guides	1	01 August 2007
Questionnaire: Spence Children's Anxiety Scale - Teacher Report (non-validated)	1.2	05 November 2007
Questionnaire: Mattick-Social Interaction Assessment Scales	1.2	05 November 2007
Questionnaire: Mattick-Social Phobia Scale (validated)	1.2	05 November 2007
Questionnaire: Penn-State Worry (validated)	1.2	05 November 2007
Questionnaire: DASS21T (validated)	1.2	05 November 2007
Questionnaire: CAIS-C (validated)	1.2	05 November 2007
Questionnaire: CAIS-P (validated)	1.2	05 November 2007
Questionnaire: Spence Children's anxiety Scale - Parent Report (validated)	1.2	05 November 2007
Questionnaire: Spence Children's anxiety Scale (validated)	1.2	05 November 2007
GP/Consultant Information Sheets	1.2	05 November 2007
Participant Information Sheet: Parent/Guardian	1.2	05 November 2007
Participant Information Sheet: Children	1.2	05 November 2007
Participant Consent Form	1.2	05 November 2007
Response to Request for Further Information		12 November 2007
Assessment of parental interactive behaviours		
Sample size justification		
Assessment schedule		
Teacher report form (6-18)	1.2	05 November 2007
Assent form for children	1.2	05 November 2007
Letter to child's teacher	1.2	05 November 2007
Indemnity arrangements		06 September 2007

R&D approval

All researchers and research collaborators who will be participating in the research at NHS sites should apply for R&D approval from the relevant care organisation, if they have not yet done so. R&D approval is required, whether or not the study is exempt from SSA. You should advise researchers and local collaborators accordingly.

Guidance on applying for R&D approval is available from http://www.rdforum.nhs.uk/rdform.htm.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Website > After Review

Here you will find links to the following
   a) Providing feedback. You are invited to give your view of the service that you have
      received from the National Research Ethics Service on the application procedure. If

you wish to make your views known please use the feedback form available on the website.

b) Progress Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.

c) Safety Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.

d) Amendments. Please refer to the attached Standard conditions of approval by Research Ethics Committees.

e) End of Study/Project. Please refer to the attached Standard conditions of approval by Research Ethics Committees.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nationalres.org.uk .

07/H0505/157	Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

Professor Nigel Wellman
Chair

Email: scsha.berksrec@nhs.net

Enclosures: *Standard approval conditions*
                              Site approval form

Copy to: Dr Mike Proven, University of Reading

N:\Letters\07 REC Numbers\07.H0505.151 - 160\07.H0505.157 - SL14 - 16.11.07.doc

This Research Ethics Committee is an advisory committee to South Central Strategic Health Authority

The National Research Ethics Service (NRES) represents the NRES Directorate within the National Patient Safety Agency and Research Ethics Committees in England

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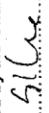
Berkshire Research Ethics Committee

LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION

For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.

REC reference number:	07/H0505/157	Issue number:	1	Date of issue:	16 November 2007

Chief Investigator:	Professor Peter Cooper

Full title of study:	Guided Self-help Treatment of Child Anxiety Disorder: A Randomised Controlled Trial

This study was given a favourable ethical opinion by Berkshire Research Ethics Committee on 16 November 2007. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.

Principal Investigator	Post	Research site	Site assessor	Date of favourable opinion for this site	Notes [1]
Professor Peter Cooper	Professor of Psychopathology	University of Reading Whiteknights Campus Shinfield Road Reading, Berkshire RG6 6AL	Berkshire Research Ethics Committee	16/11/2007	

Approved by the Chair on behalf of the REC:

.... (Signature of Assistant Co-ordinator)

........Lavenda Lee.................... (Name)

(1) *The notes column may be used by the main REC to record the early closure or withdrawal of a site (where notified by the Chief Investigator or sponsor), the suspension of termination of the favourable opinion for an individual site, or any other relevant development. The date should be recorded.*

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ANNEX C

RESEARCH IN HUMAN SUBJECTS OTHER THAN CLINICAL TRIALS OF INVESTIGATIONAL MEDICINAL PRODUCTS

Standard conditions of approval by Research Ethics Committees

1. **Further communications with the Research Ethics Committee**

1.1 Further communications during the research with the Research Ethics Committee that gave the favourable ethical opinion (hereafter referred to in this document as "the Committee") are the personal responsibility of the Chief Investigator.

2. **Commencement of the research**

2.1 It is assumed that the research will commence within 12 months of the date of the favourable ethical opinion.

2.2 In the case of research requiring site-specific assessment (SSA) the research may not commence at any site until the Committee has notified the Chief Investigator that the favourable ethical opinion is extended to the site.

2.3 The research may not commence at any NHS site until the local Principal Investigator (PI) or research collaborator has obtained research governance approval from the relevant NHS care organisation.

2.4 Should the research not commence within 12 months, the Chief Investigator should give a written explanation for the delay. It is open to the Committee to allow a further period of 12 months within which the research must commence.

2.5 Should the research not commence within 24 months, the favourable opinion will be suspended and the application would need to be re-submitted for ethical review.

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5.4   A substantial amendment should not be implemented until a favourable ethical opinion has been given by the Committee, unless the changes to the research are urgent safety measures (see section 7). The Committee is required to give an opinion within 35 days of the date of receiving a valid notice of amendment.

5.5   Amendments that are not substantial amendments ("minor amendments") may be made at any time and do not need to be notified to the Committee.

6.   Changes to sites *(studies requiring site-specific assessment only)*

6.1   Where it is proposed to include a new site in the research, there is no requirement to submit a notice of amendment form to the Committee. The SSI Form together with the local Principal Investigator's CV should be submitted to the relevant local REC for site-specific assessment (SSA).

6.2   Similarly, where it is proposed to make important changes in the management of a site (in particular, the appointment of a new PI), a notice of amendment form is not required. A revised SSI form for the site (together with the CV for the new PI if applicable) should be submitted to the relevant local REC for SSA.

6.3   The relevant local REC will notify the Committee whether there is any objection to the new site or Principal Investigator. The Committee will notify the Chief Investigator of its opinion within 35 days of receipt of the valid application for SSA.

6.4   For studies designated by the Committee as exempt from SSA, there is no requirement to notify the Committee of the inclusion of new sites.

7.   Urgent safety measures

7.1   The sponsor or the Chief Investigator, or the local Principal Investigator at a trial site, may take appropriate urgent safety measures in order to protect research participants against any immediate hazard to their health or safety.

7.2   The Committee must be notified within three days that such measures have been taken, the reasons why and the plan for further action.

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9.3 Reports of conclusion or early termination should be submitted in the form prescribed by NRES and published on the website.

10. Final report

10.1 A summary of the final report on the research should be provided to the Committee within 12 months of the conclusion of the study. This should include information on whether the study achieved its objectives, the main findings, and arrangements for publication or dissemination of the research including any feedback to participants.

11. Review of ethical opinion

11.1 The Committee may review its opinion at any time in the light of any relevant information it receives.

11.2 The Chief Investigator may at any time request that the Committee reviews its opinion, or seek advice from the Committee on any ethical issue relating to the research.

12. Breach of approval conditions

12.1 Failure to comply with these conditions may lead to suspension or termination of the favourable ethical opinion by the Committee.

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Professor P J Cooper
School of Psychology and Clinical Language Sciences

12 November 2008

Dear Professor Cooper

Research Ethics Committee
Projects:
07/48: Treatment of Child Anxiety Disorder in the Context of Maternal Anxiety: A
Randomised Controlled Trial
07/49: Guided Self-help Treatment of Child Anxiety Disorder: A Randomised Controlled
Trial
07/50: Treatment of Child Anxiety: Predictors and Outcomes of Treatment

Thank you for your recent correspondence relating to minor amendments to the
above projects. I can confirm that the Chair has reviewed these changes and is happy
for the project to proceed under these new arrangements.

Yours sincerely

Miss N Dawson
Academic Services Office
n.dawson@reading.ac.uk (Ext 6181)

cc   Professor M A Gosney, Director of the Institute of Health Sciences
      Dr J Ellis, Head of the School of Psychology and Clinical Language Sciences

Director of Quality Support
David Stannard BA

Academic Services Directorate

Whiteknights, PO Box 217
Reading RG6 6AH

phone +44 (0)118 378 6273
fax +44 (0)118 378 6248
email d.a.stannard@reading.ac.uk

Professor P.J.Cooper
School of Psychology and Clinical Language Sciences

24 January 2008

Dear Professor Cooper

Research Ethics Committee
Project 07/48: Treatment of Child Anxiety Disorder in the Context of Maternal Anxiety: A Randomised Controlled Trial

Project 07/49: Guided Self-help Treatment of Child Anxiety Disorder: A Randomised Controlled Trial

Project 07/50: Treatment of Child Anxiety: Predictors and Outcomes of Treatment

Thank you for your letter of 18 January 2008 regarding the above project, providing appropriately revised information. As indicated in my letter of 14 January 2008, the Chair is happy for the project to proceed.

Yours sincerely

D.A.Stannard
Director of Quality Support

cc   Professor E.J.Cooke, School of Law
      Dr J.A.Ellis, School of Psychology and Clinical Language Sciences
      Ms V.Williams, School of Health and Social Care

1926-2006
80 years
University of Reading

THE QUEEN'S
ANNIVERSARY PRIZES
2005

Appendix 3

Information sheets and consent forms

Parent information sheet

Berkshire Healthcare **NHS**

NHS Foundation Trust

Study Centre Address:
School of Psychology, University of Reading , Whiteknights, PO Box 238 , Reading RG6 6AL

Clinical Research Team:

Clinical Director: Dr Lucy Willetts (Tel: 0118 378 6297); l.e.willetts@reading.ac.uk
Trials Manager: Dr Rachel Gitau (Tel: 0118 378 4682); r.gitau@reading.ac.uk
Study Assessors: Sarah Cook; s.e.cook@reading.ac.uk. Amy Corcoran; a.corcoran@reading.ac.uk.
Jenny Crosby; j.crosby@reading.ac.uk. Ray Percy; r.s.percy@reading.ac.uk. Rebecca O'Grady;
r.r.ogrady@reading.ac.uk
Trials Secretary: Brendan Lawrence; b.lawrence@reading.ac.uk
Research Director: Professor Peter Cooper (Tel: 0118 378 6617); p.j.cooper@reading.ac.uk

INFORMATION SHEET FOR PARENT/GUARDIAN

Study of the Treatment of Anxiety in Children

You and your child are being invited to take part in a research study we are doing in Berkshire Healthcare NHS Foundation Trust and the University of Reading. Before you decide whether to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Do discuss this matter with others if you wish.

There is a standard talking treatment for anxious children (called 'cognitive behaviour therapy'). Studies have shown that this treatment is very helpful to lots of children. However this treatment is often not readily available within the health service as it is costly and involves highly trained staff. We have developed a brief form of this treatment that parents can use with their children, with the support of a psychologist. This 'guided self-help' approach to treatment has been found to be very helpful for a range of other types of difficulties that children experience.

Over a period of 30 months we are inviting all parents, who are not themselves anxious, who bring their children for help with anxiety and their children to participate in our study. It is entirely up to you and your child to decide whether to take part or not. If you do decide to participate, you will be given this Information Sheet (and your child will also be given one) and you will be asked to sign a consent form (a copy of which you will be given to keep). We will inform your GP that you are helping us, and we will keep in touch with your GP about your child's progress in the normal way. If you are happy, we would also like to contact your child's teacher to request information about how your child is getting on at school at the beginning and end of the study. A copy of the letter and questionnaires we would send to your child's teacher if you agree is attached. You will be free to withdraw from the study at any time without having to give any reason. If

Berkshire Child Anxiety Clinic
University of Reading

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you or your child decide not to participate, or you or your child decide to participate and then have a change of mind, this will not affect the standard of care your child will receive.

The study involves both assessment and treatment.

1 Assessment

The study involves our team making a detailed enquiry of how you are and how your child is (especially as regards problems with anxiety) before treatment begins, at the end of the course of treatment, and then six months after treatment ends. These enquiries will involve your completing some questionnaires and you and your child being asked a standard set of questions. The responses you and your child give will be treated as entirely confidential. In fact, they will be coded and entered into a computer file with anonymity completely preserved (there will be no names in the file).

2. Treatment

Two thirds of the families in the study will be offered treatment immediately. The other third will be placed on a waiting list for three months and then receive treatment if it is still needed (as studies have shown that some children recover without treatment). All children in the study will receive treatment within a shorter time period than is typically the case in local and national child and adolescent mental health services. To make sure that the groups receiving the treatment immediately or after a short wait are comparable to begin with, who goes in each group is decided randomly.

The treatment involves parent(s) meeting with a Psychologist face-to-face and having telephone appointments. Half of the parents will have 8 appointments, (four face-to-face and four telephone appointments). The other half will have four appointments (two face-to-face and two over the telephone). To make sure that the groups receiving four or eight appointments are comparable to begin with, who goes in each group is decided randomly. Parents will also be provided with a book entitled 'Overcoming your child's fears and worries'. The psychologist will help you to use the book to help your child to learn to manage his/her anxiety problems.

If the assessments show that your child has not experienced a clear reduction in anxiety following treatment, we will offer you and your child further treatment within our clinic; or if other problems emerge we will discuss this with your local child and adolescent mental health team.

In order for us to be sure that all the different forms of treatment are being delivered by the study therapists in the same way, we ask mothers and children if we can make tape recordings of the therapy sessions. Also, to understand exactly how your child reacts to stress, and your own response to this, on two occasions we will ask if we can make a

Berkshire Child Anxiety Clinic
University of Reading

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Berkshire Research Ethics reference number: 07/H0505/156- 157-176
University of Reading Ethics reference number: 07/48-49-50
Version 1.5 (6.2.08)

short video-tape and record your own and your child's heart rate whilst we do this. Specific permission will be sought to make these recordings. The audio and video tapes will be heard and seen only by members of the research team; and they will be destroyed at the end of the research study.

Medication

One of the requirements of this trial is that participants (parents and children) must either not be prescribed medication aimed at changing their mood or behaviour (e.g. anti-depressant medication or Ritalin) or this must have been prescribed at a stable dose for at least one month prior to joining the trial, with agreement to maintain that dose throughout the study. If medication does need to be changed whilst you are taking part, you would have to withdraw from the study (however we would not withdraw treatment). If you have any concerns regarding this requirement please do not hesitate to discuss this with us and/or your general practitioner.

To summarise, if you and your child decide to take part in this study, you will be helped to work with your child to manage his/her anxiety problems. This will either begin immediately or after a three-month wait. We will ask you and your child standard questions to find out how you both are before treatment begins and on two subsequent occasions. All information collected in this study is treated as confidential and nothing will be divulged to any other party (the exception being, if we learn that you or your child is at risk of harm). Our intention is to publish the results of this study in a medical journal. When we do this, no personal information will be given and the findings will be reported as anonymous summary statistics. If we quote anything that has been said by participants in the study, these will be anonymous and will not be traceable to a particular individual. If you would like a report of the findings of our study, we will be happy to provide it.

We anticipate that the children and parents who participate in this study will benefit considerably. However, there will be a review assessment of each mother and child at the final assessment, and if further treatment is judged to be necessary, we will ensure that this is provided.

This study was given a favourable ethical opinion for conduct by both the University of Reading Research Ethics Committee and the Berkshire Research Ethics Committee. Everyone working on this study has been through the formal Criminal Records Bureau Disclosure process and has been approved by the School of Psychology of the University of Reading to work with children.

Berkshire Child Anxiety Clinic
University of Reading

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If you have any questions or concerns about this study, now or at any time in the future, please do ask one of us.

Yours sincerely

Lucy Willetts   Dr Sue Cruddace   Professor Peter Cooper
Clinical Director   Trial Manager   Research Director

Berkshire Child Anxiety Clinic
University of Reading

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Parent consent form

Berkshire Healthcare NHS
NHS Foundation Trust

Study Centre Address:
School of Psychology, University of Reading , Whiteknights, PO Box 238 , Reading RG6 6AL

Clinical Research Team:

Clinical Director: Dr Lucy Willetts (Tel: 0118 378 6297); l.e.willetts@reading.ac.uk
Trials Manager: Dr Rachel Gitau (Tel: 0118 378 4682); r.gitau@reading.ac.uk
Study Assessors: Sarah Cook; s.e.cook@reading.ac.uk. Amy Corcoran; a.corcoran@reading.ac.uk.
Jenny Crosby; j.crosby@reading.ac.uk. Ray Percy; r.s.percy@reading.ac.uk. Sarah Shaw;
sxs07ses@reading.ac.uk.
Trials Secretary: Brendan Lawrence; b.lawrence@reading.ac.uk
Research Director: Professor Peter Cooper (Tel: 0118 378 6617); p.j.cooper@reading.ac.uk
!!!!!!!!!!!!!!!!!!!!

Patient identification number for this trial:

PARENT CONSENT FORM

Overcoming your Child's Fears and Worries

	Please initial box to show agreement.
1. I confirm that I have read and understand the information sheet dated 6.2.08 (version 1.5) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2. I understand that my and my child's participation is voluntary and that we are free to withdraw at any time, without giving a reason, without my medical care or legal rights being affected.	
3. I understand that any relevant section of our medical notes and data collected during the study, may be looked at by responsible individuals from The University of Reading or the NHS Trust, where it is relevant to our taking part in this research. I give permission for these individuals to have access to my records.	
4. I agree to our GP(s) being informed of this study	
5. I agree to my child's teacher being informed of their participation in this treatment study, and being contacted to provide information.	
6. I agree to audio and video-recordings being made during the course of the study. I understand that the audio and video tapes will be heard and seen only by members of the research team; and they will be destroyed at the end of the research study.	
7. I agree to anonymised quotations being used in research reports.	
8. I agree to take part in this study.	

Name of child: _____

Name of parent/guardian: _____

Parent/guardian signature: _____

Date: _____

Name of person taking consent: _____

Date: _____

Signature: _____

When completed, 1 for parent; 1 for researcher site file; 1 (original) in medical notes

Child information sheet

Berkshire Healthcare NHS

NHS Foundation Trust !

Study Centre Address:
School of Psychology, University of Reading , Whiteknights, PO Box 238 , Reading RG6 6AL

Clinical Research Team:

Clinical Director: Dr Lucy Willetts (Tel: 0118 378 6297); l.e.willetts@reading.ac.uk
Trials Manager: Dr Rachel Gitau (Tel: 0118 378 4682); r.gitau@reading.ac.uk
Study Assessors: Sarah Cook; s.e.cook@reading.ac.uk. Amy Corcoran; a.corcoran@reading.ac.uk.
Jenny Crosby; j.crosby@reading.ac.uk. Ray Percy; r.s.percy@reading.ac.uk. Rebecca O'Grady;
r.r.ogrady@reading.ac.uk .
Trials Secretary: Brendan Lawrence; b.lawrence@reading.ac.uk
Research Director: Professor Peter Cooper (Tel: 0118 378 6617); p.j.cooper@reading.ac.uk

INFORMATION SHEET FOR CHILDREN

Overcoming your Child's Fears and Worries

You have come to our clinic for help with some problems you have been having. At this clinic we help children with these problems and we are going to do everything we can to help you.

As well as giving you some help, we are inviting you and your mum or dad to take part in a study we are doing. This study is to help us find better ways of helping children. In the study we will do two things. First, we will be working with your mum or dad to help them to help you with your anxiety problems. We will either do this now or there will be a short wait before this starts.

Second, we will ask the children and their mums or dads lots of questions about how they are feeling. We ask these questions before treatment begins, and then again every few months. We also would like to tape record the treatment sessions (so that we can check that all the children are receiving the same sort of help) and make some video-tapes of you and your mum or dad doing some different activities together. If you don't mind we will also use a small machine which can tell us how much your heart is beating when you do these tasks.

We would like you to help us by taking part in our study. You do not have to do this. If you and your mum or dad don't want to take part, you will still receive the usual help that we give children. Also, if you do take part and then change your mind, this won't matter at all. You won't have to give us a reason, and we will still help you with your problems.

Everything you tell us in the clinic and anything you tell us as part of our study is treated as a secret; nobody other than us will ever know what you have told us. If we use anything you have said when we are telling people about our study, we will make sure nobody can tell who has said it. (The only time we would not be able to keep a secret is if you told us that you or someone else was at risk of real danger. In this situation we would have to speak to another adult - like your mum or your family doctor).

Berkshire Child Anxiety Clinic
University of Reading

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Before any research is allowed to happen, it has to be checked by a group of people called an Ethics Committee. They make sure that the research is OK to do. This study has been checked by the Reading University Committee and the Berkshire NHS Committee, and they were happy for it to go ahead.

If you have any questions about our study, either now or later, please do ask us. You have a right to know everything and we will be happy to tell you everything.

Yours sincerely,

Dr Lucy Willetts   Dr Sue Cruddace   Professor Peter Cooper
Clinical Director   Trial Manager   Research Director

Berkshire Child Anxiety Clinic
University of Reading

Child consent form

Berkshire Healthcare NHS
NHS Foundation Trust

School of Psychology
University of Reading
Whiteknights
PO Box 238
Reading RG6 6AL
UK

CONSENT FORM FOR CHILDREN
(To be completed by the child and his/her guardian)

Overcoming your Child's Fears and Worries

Please circle all you agree with:

Have you read (or had read to you) the information about this project?	**YES/ NO**
Has somebody else explained this project to you?	**YES/ NO**
Do you understand what this project is about?	**YES/ NO**
Have you asked all the questions you want?	**YES/ NO**
Have you had your questions answered in a way you understand?	**YES/ NO**
Do you understand it's OK to stop taking part at any time?	**YES/ NO**
Are you happy to take part?	**YES/ NO**

If any answers are 'no' or you **don't** want to take part, **don't** sign your name!

If you **do** want to take part, please write your name and today's date
Your name   _____
Date   _____

Your parent or guardian must write his/her name here too if s/he is happy for you to do the project
Print name   _____
Sign   _____
Date   _____

The person who explained this project to you needs to sign too:
Print name   _____
Sign   _____
Date   _____

Appendix 4.

Items included in the Black Box Task

Time 1
- Soft toy
- Plastic ball containing slime and toy blood and bugs
- "Slime"
- Putty

Time 2
- Feather bower
- Artificial braided hair piece
- Shredded craft paper
- Squidgy plastic toy

Appendix 5

Session by session outline of guided parent-delivered CBT programme

Session	Contact	Content
1	Face-to-face	Psychoeducation:
		• what is anxiety and when does it become a problem?
		• Anxiety disorders: Types, causes, maintaining factors, impact.
		• Treatment approach and introduction to CBT model.
2	Face-to-face	• Psychoeducation: Cognitive aspects of anxiety disorders.
		• Identifying and challenging child's anxious thoughts.
		• Testing out fears.
		• Cutting out reassurance
		• Encouraging independence and 'having a go'
		• Attention and praise
		• Modelling approach behaviours
3	Telephone	Review homework:
		• Anxious thought challenging
		• Recording parental responses to anxious child
4	Face-to-face	• Psychoeducation: facing your fears
		• Devise graded exposure hierarchy
		• Linking anxious thought challenging techniques to the graded exposure hierarchy
		• Parental responses to child attempting step on exposure hierarchy
5	Telephone	Review homework:
		• Completing graded exposure hierarchy with child
		• Trying first step on graded exposure hierarchy
		• Problem solve any difficulties implementing graded exposure hierarchy
		• Review of anxious thought challenging

6	Telephone	Review homework: • Progress made implementing graded exposure hierarchy • Review of anxious thought challenging • Review of monitoring parental responses to anxious child
7	Face-to-face	• Psychoeducation: problem-solving • Step-by-step problem solving exercise • Reflection on what has been helpful • Maintaining progress and relapse prevention
8	Telephone	Review homework: • Progress made implementing graded exposure hierarchy • Use of problem solving strategies with child • Review of anxious thought challenging Identification of future goals

Appendix 6

Sociodemographic Questionnaire

A . Your Child

Child's age	
Ethnicity (please enter the relevant code from the table below)	

White	Code	Black or Black British	Code
British	A	African	M
Irish	B	Caribbean	N
Any other White Background	C	Any other Black background	P
Mixed		**Other Ethnic groups**	
White and Black Caribbean	D	Chinese	R
White and Black African	E	Any other Ethnic group	S
White and Asian	F	**Not Stated**	
Any other mixed background	G	I do not wish to state my ethnicity	Z
Asian or Asian British			
Indian	H		
Pakistani	J		
Bangladeshi	K		
Any other Asian background	L		

B. Household Details

Please give details about all of the members of your household **including yourself**:

Member's relationship to child (e.g. mother*, father*, step-father, sister)	Age

    * please specify with a * if the mother/father are *not biological* parents to the child

C. Relationship

1. How would you describe your current marital status? Please tick the box   that best describes your marital status

Single, never married	
Married (first time)	
Remarried	
Divorced/separated	
Living with partner	
Widowed	

2. If you do not live with your child's biological father, would you be willing for us to contact him to gather further information to assess your child's progress through treatment?   **YES / NO / NA**

    If **Yes**, please provide your child's biological father's contact details:

Name:	
Address:	
Telephone number(s):	

D. Education

Please tick where appropriate

	Self	*Husband/Partner*
School completion		
Further education (e.g. college, vocational courses)		
Higher education (undergraduate degree)		
Postgraduate qualification		

E. Employment

1. Please tick where appropriate

	Self	*Husband/Partner*
Unemployed		
Part-time work		
Full-time work		
Retired		

2. If employed, please state current occupation:

Self	
Husband/Partner	

Appendix 7

Spence Children's Anxiety Scale - Parent report (SCAS-P)

Not included due to copyright restrictions

Spence Children's Anxiety Scale - Child report (SCAS-C)

Not included due to copyright restrictions

Appendix 8

Child Anxiety Impact Scale – Parent Report (CAIS-P)

Instructions: Please rate how much anxiety (feeling nervous and afraid) has caused problems for your child in the following areas over the past month.   If the question does not apply mark "**Not at all**".

In the **past month**, how much trouble has your child had doing the following because of anxiety?	Not at All	Just a Little	Pretty Much	Very Much
School Activities				
1. Getting to school on time in the morning	○	○	○	○
2. Giving oral reports or reading out loud	○	○	○	○
3. Writing in class	○	○	○	○
4. Taking tests or exams	○	○	○	○
5. Completing work in class	○	○	○	○
6. Doing homework	○	○	○	○
7. Getting good marks	○	○	○	○
8. Doing fun things during break or free time	○	○	○	○
9. Concentrating on his/her work	○	○	○	○
10. Eating lunch with other kids	○	○	○	○
Social Activities				
11. Making new friends	○	○	○	○
12. Leaving the house	○	○	○	○
13. Talking on the phone	○	○	○	○
14. Being with a group of strangers	○	○	○	○
15. Going to a friend's house during the day	○	○	○	○
16. Spending a night at a friend's house	○	○	○	○
17. Going to a sports event	○	○	○	○
18. Going shopping or trying on clothes	○	○	○	○
19. Going on a date	○	○	○	○
20. Having a boyfriend/girlfriend	○	○	○	○
21. Eating in public	○	○	○	○

In the **past month**, how much trouble has your child had doing the following because of anxiety?	Not at All	Just a Little	Pretty Much	Very Much
Home/Family Activities				
22. Getting ready for bed at night	○	○	○	○
23. Sleeping at night	○	○	○	○
24. Getting along with his/her brothers or sisters	○	○	○	○
25. Getting along with his/her parents	○	○	○	○
26. Visiting relatives	○	○	○	○
27. Having relatives visit	○	○	○	○
Please list any other areas where anxiety is causing a problem for your child				
28.	○	○	○	○
29.	○	○	○	○
Global items				
30. Overall, how much is your child's anxiety causing problems for him/her at **school**?	○	○	○	○
31. Overall, how much is your child's anxiety causing problems for him/her **socially,** that is with friends?	○	○	○	○
32. Overall, how much is your child's anxiety preventing him/her from **going places** with friends or relatives?	○	○	○	○
33. Overall, how much is your child's anxiety causing problems for him/her with your **family and at home**?	○	○	○	○

Child Anxiety Impact Scale – Child Report (CAIS-C)

Instructions: Please rate how much your anxiety (feeling nervous and afraid) has caused problems for you in the following areas over the past month.   If the question does not apply to you mark "**Not at all**".

In the **past month**, how much trouble have you had doing the following, because of your anxiety?	Not at All	Just a Little	Pretty Much	Very Much
School Activities				
1. Getting to school on time in the morning	○	○	○	○
2. Giving oral reports or reading out loud	○	○	○	○
3. Writing in class	○	○	○	○
4. Taking tests or exams	○	○	○	○
5. Completing work in class	○	○	○	○
6. Doing homework	○	○	○	○
7. Getting good marks	○	○	○	○
8. Doing fun things during break or free time	○	○	○	○
9. Concentrating on my work	○	○	○	○
10. Eating lunch with other kids	○	○	○	○
Social Activities				
11. Making new friends	○	○	○	○
12. Leaving the house	○	○	○	○
13. Talking on the phone	○	○	○	○
14. Being with a group of strangers	○	○	○	○
15. Going to a friend's house during the day	○	○	○	○
16. Spending a night at a friend's house	○	○	○	○
17. Going to a sports event	○	○	○	○
18. Going shopping or trying on clothes	○	○	○	○
19. Going on a date	○	○	○	○
20. Having a boyfriend/girlfriend	○	○	○	○
21. Eating in public	○	○	○	○

In the **past month**, how much trouble have you had doing the following, because of your anxiety?	Not at All	Just a Little	Pretty Much	Very Much
Home/Family Activities				
22. Getting ready for bed at night	○	○	○	○
23. Sleeping at night	○	○	○	○
24. Getting along with my brothers or sisters	○	○	○	○
25. Getting along with my parents	○	○	○	○
26. Visiting relatives	○	○	○	○
27. Having relatives visit	○	○	○	○
Please list any other areas where your anxiety is causing a problem for you				
28.	○	○	○	○
29.	○	○	○	○
Global items				
30. Overall, how much is your anxiety causing problems for you at **school**?	○	○	○	○
31. Overall, how much is your anxiety causing problems for you **socially,** that is with friends?	○	○	○	○
32. Overall, how much is your anxiety preventing you from **going places** with friends or relatives?	○	○	○	○
33. Overall, how much is your anxiety causing problems for you with your **family and at home**?	○	○	○	○

Appendix 9

Clinical Global Impression - Improvement Scale (CGI-I)

Instructions: Rate total improvement whether or not, in your judgement, it is due entirely to treatment. Compared to the child's condition at admission to the trial, how much has s/he changed?

1 = Very much improved
2 = Much improved
3 = Minimally improved
4 = No change
5 = Minimally worse
6 = Much worse
7 = Very much worse

Appendix 10

Short Mood and Feelings Questionnaire – Parent report (SMFQ-P)

Instructions: This form is about how your child may have been feeling or acting recently. For each question please check how much she or he has felt or acted **in the past two weeks**. If a sentence was true about your child most of the time, check **true**. If it was only sometimes true, check **sometimes**. If a sentence was not true about your child, check **not true**.

	Not True	Sometimes	True
1. S/he felt miserable or unhappy			
2. S/he didn't enjoy anything at all			
3. S/he felt tired that s/he just sat around and did nothing			
4. S/he was very restless			
5. She felt s/he was no good anymore			
6. S/he cried a lot			
7. S/he found it hard to think properly or concentrate			
8. S/he hated him/herself			
9. She felt s/he was a bad person			
10. S/he felt lonely			
11. S/he thought nobody really loved him/her			
12. S/he thought s/he could never be as good as other kids			
13. S/he felt s/he did everything wrong			

Short Mood and Feelings Questionnaire – Child report (SMFQ-C)

Instructions: This form is about how you might have been feeling or acting recently. For each question, please tick how much you have felt or acted this way *in the past two weeks*. If a sentence was true about you most of the time tick **True**. If it was only sometimes true, tick **Sometimes**. If a sentence was not true about you, tick **Not True**.

	Not True	Sometimes	True
1. I felt miserable or unhappy	○	○	○
2. I didn't enjoy anything at all	○	○	○
3. I felt so tired I just sat around and did nothing	○	○	○
4. I was very restless	○	○	○
5. I felt I was no good any more	○	○	○
6. I cried a lot	○	○	○
7. I found it hard to think properly and concentrate	○	○	○
8. I hated myself	○	○	○
9. I was a bad person	○	○	○
10. I felt lonely	○	○	○
11. I thought nobody really loved me	○	○	○
12. I thought I could never be as good as other kids	○	○	○
13. I did everything wrong	○	○	○

Appendix 11

Conduct Problems Subscale of Strengths and Difficulties Questionnaire (SDQ)

Instructions: For each item, please mark the box for **Not True, Somewhat True or Certainly True**. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of your child's behaviour over the last six months or this school year.

Please give your answers on the basis of **how things have been for your child over the last 6 months.**	Not True	Somewhat True	Certainly True
1. Often has temper tantrums or hot tempers	○	○	○
2. Generally obedient, usually does what adults request	○	○	○
3. Often fights with other children or bullies them	○	○	○
4. Often lies or cheats	○	○	○
5. Steal from home, school or elsewhere	○	○	○

Appendix 12

Coding scheme for behaviours in Black Box Task

Not included here due to copyright restrictions

Appendix 13

Inter-rater reliability for Black Box Task data

Behaviours	ICC
Parental behaviours	
Targeted positive behaviours	
Encouragement	0.97
Positive modelling	0.93
Threat minimisation	0.94
Vulnerability minimisation	0.96
Praise	0.97
Targeted negative behaviours	
Parental anxiety	0.93
Promotion of avoidance	0.96
Overprotection	0.84
Threat augmentation	0.86
Vulnerability promotion	0.98
Criticism	0.78
Non-targeted positive behaviours	
Warmth	0.93
Quality of relationship	0.97
Facilitation	0.95
Engagement	0.96
Sensitive responsiveness	0.95
Non-targeted negative behaviours	
Intrusiveness	0.96
Passivity	0.95

Child Behaviours

Anxiety	0.95
Avoidance	0.90

ICC = Intraclass Correlation Coefficient

Appendix 14

Black Box Task Parental Expectations Questionnaire

Please answer some questions about what you think about the Black Box Task that your child is now going to do. Please circle *one number* for each item to show what you think. You don't need to think for too long before choosing a number – just give the number that first seems right to you. Thank you.

	Not at all										Very, Very much
1) How scared do you think *your child* will feel about doing this task?	0	1	2	3	4	5	6	7	8	9	10
2) How anxious do you think *you* will feel when your child is doing the task?	0	1	2	3	4	5	6	7	8	9	10
3) How much do you think *you* will be able to make a difference to how your child feels about doing this task?	0	1	2	3	4	5	6	7	8	9	10
4) Do you think *your child* will do well at this task?	0	1	2	3	4	5	6	7	8	9	10
5) How much do you think *you* will be able to make a difference to how well your child does this task?	0	1	2	3	4	5	6	7	8	9	10
*6) Do you think **your child** can do much about how this task goes? (How in control will your child be?)*	0	1	2	3	4	5	6	7	8	9	10

Appendix 15

Ambiguous Situations Questionnaire (ASQ)

Instructions:

I am going to describe to you some situations that your child might find him/herself in. S/he might have been in some of these situations before. For others, you might have to imagine what it would be like for him/her to be in that situation. The important thing is that you say what your child would really think in that situation and what s/he would really do in that situation. Please ask if any of the questions are not clear.

Ambiguous Situations:

1. Your child notices at school one day that his/her favourite book is missing.
2. Your child sees the School Headteacher walking around the playground and s/he has been asking other children where your child is.
3. Your child is staying over at a friend's house and their parents seem to be very angry.
4. Your child sees a group of children from another class playing a great game. When s/he walks over to join in they are laughing.
5. Your child arranges to have a party at 4 o'clock and by half past 4 no one has arrived.
6. Your child is showing his/her school project in front of the class and two children at the back of the class are giggling.
7. *If you don't have a dog just pretend you do for this next situation:* Your child is playing inside and your dog runs to the door and starts to bark and growl.
8. On the way to school your child starts to feel sick in the tummy.
9. Your child is lying in bed at night when he/she hears a big crash in the house.
10. Your child is at a friend's house and the phone rings in the middle of the night.
11. Your child is walking to a friend's house and a big dog comes up to him/her.
12. Your child is reading and cannot see the words properly.

Questions asked for each ambiguous situation:

a) How upset would your child be about this?

_____

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

not upset at all   very, very upset

b) When you are with your child later on, how much could you change how they *feel* about this?

```
_____
0      1      2      3      4      5      6      7      8      9      10
Not at all                                                         A lot
```

c) What will your child think is most likely to have happened (*in that situation)*?

d) How much do you think your child can do about this?

```
_____
0      1      2      3      4      5      6      7      8      9      10
Nothing at all                                                     A lot
```

e) What will your child do about it?

f) How much could you change what your child *does* if this happened again?

```
_____
0      1      2      3      4      5      6      7      8      9      10
Not at all                                                         A lot
```

Forced choice threat interpretation:

For each ASQ item, the following was asked:

Instructions:

Of the two choices I'm now going to read out, which thought is your child most likely to have (it doesn't matter if none of the answers match the one you have just written, just choose the most likely one out of these two):

Items:

Question number	Forced choice response options
1	Someone has stolen the book from your child
	Your child left his/her book at home
2	The Head teacher has a message for your child
	The Head teacher thinks your child has done something wrong
3	They had an argument and are upset with each other
	They don't want your child to be there and are angry at him/her
4	One of them has told a nasty joke about your child
	They are laughing about something in the game
5	No one wants to come to the party
	They are running a little late
6	They are laughing at something stupid that your child said
	One of them told a joke and they are laughing at that
7	There is another dog walking past outside
	There is someone your child doesn't know trying to get in to the house
8	Your child ate some bad food and is going to be really sick at school
	Your child didn't have enough breakfast and is just feeling hungry
9	Someone has dropped something on the floor
	One of your child's parents has fallen and is hurt
10	There is an emergency at home
	It is a wrong number
11	The dog wants to sniff him/her and have a pat
	The dog is going to bite him/her
12	Your child's eyes are tired
	There is something wrong with your child's eyes

Appendix 16

Intercorrelations (r) between parental behaviours in Black Box Task: Pre-intervention

	Targeted positive behaviour					*Targeted negative behaviour*						*Non-targeted positive behaviour*				*Non-targeted negative behaviour*		
	Encouragement	Positive modelling	Threat minimisation	Vulnerability minimisation	Praise	Parental anxiety	Promotion of avoidance	Overprotection	Threat augmentation	Vulnerability promotion	Criticism	Warmth	Quality of relationship	Facilitation	Engagement	Sensitive responsiveness	Intrusiveness	Passivity
Targeted positive behaviours																		
Encouragement	___																	
Positive modelling	.21	___																
Threat minimisation	.31	.13	___															
Vulnerability minimisation	.21	.09	.19	___														
Praise	.37	-.01	.14	.46	___													
Targeted negative behaviours																		
Parental anxiety	-.31	-.15	.05	-.12	-.04	___												
Promotion of avoidance	-.02	.10	-.10	.11	.13	.06	___											
Overprotection	.04	.03	.09	.14	.12	-.04	-.08	___										

Threat augmentation	-.11	.03	.16	-.01	.08	.27	.12	-.12	___									
Vulnerability promotion	-.16	-.13	-.22	.16	.02	.12	.18	-.06	.23	___								
Criticism	-.30	.03	-.19	-.04	-.08	-.08	.04	-.13	.11	.29	___							
Non-targeted positive behaviours Warmth	.61	.30	.16	-.08	.05	-.26	.02	.08	-.10	-.10	-.32	___						
Quality of relationship	.44	.16	-.02	-.17	.06	-.10	-.01	.11	-.03	-.01	-.23	.66	___					
Facilitation	.46	.02	.07	.13	.12	-.21	.12	-.18	.03	.05	-.04	.29	.36	___				
Engagement	.48	.32	.15	-.02	.16	-.12	.06	.06	.16	.03	-.12	.57	.56	.40	___			
Sensitive responsiveness	.65	.13	-.01	-.05	.09	-.34	-.06	.04	-.20	-.08	-.28	.73	.75	.45	.56	___		
Non-targeted negative behaviours Intrusiveness	-.38	.08	.04	-.10	-.13	.18	-.04	.01	.16	.12	.34	-.30	-.31	-.32	-.08	-.42	___	
Passivity	-.25	-.16	.04	-.04	-.09	.21	-.03	.09	-.05	-.09	-.04	-.31	-.16	-.51	-.47	-.34	.09	___

Intercorrelations (r) between parental behaviours in Black Box Task: Post-intervention

	Targeted positive behaviour					Targeted negative behaviour						Non-targeted positive behaviour					Non-targeted negative behaviour
	Encouragement	Positive modelling	Threat minimisation	Vulnerability minimisation	Praise	Parental anxiety	Promotion of avoidance	Overprotection	Threat augmentation	Vulnerability promotion	Criticism	Warmth	Quality of relationship	Facilitation	Engagement	Sensitive responsiveness	Intrusiveness	Passivity
Targeted positive behaviours																		
Encouragement	___																	
Positive modelling	.12	___																
Threat minimisation	.20	.22	___															
Vulnerability minimisation	.25	-.01	.06	___														
Praise	.07	-.04	.21	.22	___													
Targeted negative behaviours																		
Parental anxiety	-.12	-.20	-.02	-.01	.03	___												
Promotion of avoidance	.17	.20	.04	-.08	-.01	.02	___											
Overprotection	.03	-.05	-.06	-.03	.04	-.06	-.04	___										
Threat augmentation	-.23	-.21	-.05	.17	-.07	.42	-.04	-.10	___									

Vulnerability promotion	.06	-.06	-.06	.11	-.04	.13	.16	.30	.13	___							
Criticism	-.15	.10	-.06	-.08	-.02	.23	-.02	-.03	-.07	.12	___						

Non-targeted positive behaviours

Warmth	.45	.11	.29	.16	.15	-.03	.01	.07	-.19	-.01	-.21	___					
Quality of relationship	.30	.10	.20	.08	.19	.16	-.10	.05	-.08	-.10	-.17	.76	___				
Facilitation	.71	.05	.21	.10	.14	-.02	.03	.01	.22	.03	-.05	.44	.39	___			
Engagement	.70	.26	.30	.11	.06	.06	.11	.09	-.15	.09	-.07	.60	.53	.76	___		
Sensitive responsiveness	.49	.09	.09	.04	.16	-.23	.14	.10	-.31	.01	-.26	.72	.67	.55	.57	___	

Non-targeted negative behaviours

Intrusiveness	.19	.19	.10	-.03	-.18	.20	.04	.03	.05	.28	.38	-.13	-.11	.34	.31	-.17	___	
Passivity	-.60	-.13	-.20	-.01	-.07	.08	-.15	-.07	.02	-.11	-.06	-.40	-.34	-.73	-.68	-.56	-.36	___

Appendix 17

Intercorrelations between parental expectations in Black Box Task: Pre-intervention

	Child anxiety	Child performance	Child control	Parental anxiety	Parental control over child feeling	Parental control over child performance
Child anxiety	_____					
Child performance	-0.50	_____				
Child control	-0.39	0.50	_____			
Parental anxiety	0.44	-0.06	-0.04	_____		
Parental control over child feeling	0.12	0.12	0.23	0.12	_____	
Parental control over child performance	0.03	0.18	0.34	0.10	0.80	_____

Intercorrelations between parental expectations in Black Box Task: Post-intervention

	Child anxiety	Child performance	Child control	Parental anxiety	Parental control over child feeling	Parental control over child performance
Child anxiety	_____					
Child performance	-0.50	_____				
Child control	-0.45	0.44	_____			
Parental anxiety	0.66	-0.27	-0.35	_____		
Parental control over child feeling	0.32	-0.17	0.01	0.24	_____	
Parental control over child performance	0.20	0.06	0.02	0.18	0.79	_____

Appendix 18

Intercorrelations between parent cognitions (ASQ): Pre-intervention

	Child distress	Child control	Child threat interpretation (free response)	Child threat interpretation (forced choice)	Child avoidance	Maternal control of child feeling	Maternal control of child behaviour
Child distress	_____						
Child control	-0.22	_____					
Child threat interpretation (free response)	0.52	-0.20	_____				
Child threat interpretation (forced choice)	0.60	-0.30	0.79	_____			
Child avoidance	0.41	-0.24	0.46	0.50	_____		
Maternal control of child feeling	0.13	0.17	-0.08	-0.07	-0.32	_____	
Maternal control of child behaviour	0.08	0.24	-0.04	-0.05	-0.26	0.85	_____

Intercorrelations between parent cognitions (ASQ): Post-intervention

	Child distress	Child control	Child threat interpretation (free response)	Child threat interpretation (forced choice)	Child avoidance	Maternal control of child feeling	Maternal control of child behaviour
Child distress	_____						
Child control	-0.27	___					
Child threat interpretation (free response)	0.64	-0.39	_____				
Child threat interpretation (forced choice)	0.61	-0.36	0.84	_____			
Child avoidance	0.43	-0.39	0.53	0.57	_____		
Maternal control of child feeling	0.10	0.53	-0.21	-0.25	-0.39	_____	
Maternal control of child behaviour	0.07	0.54	-0.19	-0.20	-0.19	0.92	_____

Appendix 19

Pearson correlation coefficients (r) between parental behaviour change and child treatment outcome change for participants in each treatment condition

Parental behaviour	SCAS				CAIS				CSR		CGI-I	
	Parent		Child		Parent		Child					
	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC
Targeted positive behaviours												
Encouragement	-0.04	-0.07	-0.17	0.03	0.24	0.02	0.18	-0.03	0	-0.06	-0.14	0.10
Positive modelling	0.04	-0.17	-0.15	0.02	-0.20	0.05	-0.40	-0.09	0	0.03	0	0.13
Threat minimisation	0.03	-0.33	-0.06	-0.11	0.02	0.30	-0.37	-0.06	-0.12	0.12	0.05	0.17
Vulnerability minimisation	0.26	-0.08	0.26	-0.22	0.03	-0.17	0.01	0.02	-0.07	0.14	-0.06	0.07
Praise	0.24	-0.15	0.24	-0.15	0.11	-0.05	0.16	-0.15	-0.01	-0.20	-0.17	-0.33
Targeted negative behaviours												
Parental anxiety	-0.03	-0.03	-0.04	-0.08	-0.01	0.13	-0.09	-0.03	0.11	0.07	0.08	0.01

Promotion of avoidance	-0.24	0.07	-0.37	-0.11	-0.04	-0.10	-0.27	-0.07	0.17	-0.15	-0.07	-0.07
Overprotection	0.02	-0.27	-0.08	0.27	0.12	0.11	-0.21	0.20	0	0.12	-0.10	0.02
Threat augmentation	-0.17	0.01	-0.14	0.03	-0.20	-0.05	-0.04	0.11	0.03	-0.01	0.10	-0.04
Vulnerability promotion	-0.12	0.13	-0.07	0.18	0.19	-0.13	0.16	0.14	0.17	-0.23	0.11	-0.20
Criticism	-0.01	-0.15	-0.12	-0.11	-0.21	-0.05	-0.17	-0.16	0.02	-0.17	-0.13	-0.16
Non-targeted positive behaviours												
Warmth	0.04	-0.03	-0.01	0.04	-0.21	0.42	-0.13	0.05	0.04	0.29	0.06	0.35
Quality of relationship	0.32	-0.12	-0.12	-0.10	-0.07	0.28	-0.09	-0.06	0	0.13	0.01	0.17
Facilitation	0.06	0.02	-0.32	-0.04	-0.05	0.15	0.02	-0.13	-0.04	-0.16	-0.17	-0.04
Engagement	-0.03	-0.16	-0.22	-0.01	-0.02	0.20	0.04	0.06	0.11	0.11	-0.21	0.11
Sensitive responsiveness	0.11	0.03	0.14	-0.04	-0.16	0.30	0.19	-0.05	0.11	0.05	0.09	0.05
Non-targeted negative behaviours												

Intrusiveness	-0.11	-0.21	-0.14	-0.02	0.16	0.10	-0.06	0.16	-0.09	-0.06	-0.16	0.05
Passivity	-0.06	0.03	0.19	-0.13	0.03	-0.07	-0.21	-0.12	-0.04	0.07	0.11	-0.01

Tx = Treatment, WLC = Waitlist Control

Appendix 20

Pearson correlation coefficients between change in parental cognitions (Black Box Task Expectation) and change in child treatment outcomes for each treatment group

Parental cognition	SCAS				CAIS				CSR		CGI-I	
	Parent		Child		Parent		Child					
	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC
Child anxiety	-0.13	0.05	0.01	0.05	-0.04	0.12	-0.12	0.10	0.08	0.04	-0.12	0.08
Child performance	0.25	-0.09	-0.16	-0.05	0.11	-0.03	-0.32	-0.15	-0.23	0.14	-0.05	0.10
Child control	0.16	0.29	0.17	-0.03	0.15	-0.10	0.17	-0.09	-0.04	0.02	0.11	0.07
Maternal anxiety	-0.17	0.04	-0.27	0.20	-0.22	-0.08	-0.40	0.17	-0.19	-0.03	-0.34	0.02
Maternal control	0.01	-0.05	-0.42	0.15	0.17	-0.02	-0.25	0.12	-0.16	0.12	-0.07	0.21

Tx = Treatment, WLC = Waitlist Control

Appendix 21

Pearson correlation coefficients between change in parental cognitions (ASQ) and change in child treatment outcomes for each treatment group

Parental cognition	SCAS				CAIS				CSR		CGI-I	
	Parent		Child		Parent		Child					
	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC	Tx	WLC
Child anxiety	-0.01	0.12	0.27	0.07	-0.02	0.09	0.11	-0.03	0.32	0.20	0.44	0.14
Child avoidance	0.02	-0.06	0.46	0.08	-0.14	0.02	0.11	0.12	0.09	0.32	0.18	0.28
Child control	-0.03	-0.35	-0.39	0.04	-0.23	-0.30	-0.42	-0.09	-0.25	0.01	-0.06	-0.09
Child threat interpretation	0.15	-0.06	0.43	0.09	-0.18	-0.03	0.10	0.11	0.12	0.20	0.10	0.18
Maternal control	-0.23	-0.10	-0.48	0.16	-0.01	-0.19	-0.37	0.08	-0.22	0.17	-0.14	0.10

Tx = Treatment, WLC = Waitlist Control