



**University of
Reading**

**Understanding anxiety disorders in adolescence:
An examination of clinical characteristics, parental
behaviours and interpretation biases**

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Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

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Abstract

Anxiety disorders in children and adolescents are a common psychiatric problem. Although research and treatment has developed greatly, adolescents have been largely overlooked. Studies of normative development suggest that adolescence is a distinct phase of development. These developmental differences may account for the (albeit mixed) evidence that adolescents with anxiety disorders have significantly poorer treatment outcomes, compared to anxious children. The aim of the papers in this thesis was to develop understanding of characteristics of anxious adolescents that could be addressed through psychological treatment, relating to clinical presentation, cognitive biases and parenting behaviours. Adolescents with anxiety disorders, compared to children with anxiety disorders, were found to have more severe anxiety symptoms, more frequent primary diagnoses of social anxiety disorder, diagnoses/symptoms of mood disorders, and irregular school attendance. Parents of adolescents showed significantly lower levels of expressed anxiety, intrusiveness and warmth/engagement than parents of children. Furthermore, offspring age moderated the association between anxiety disorder status and parenting behaviours, in that parents of adolescents with anxiety disorders showed significantly higher intrusiveness and lower warmth/engagement than parents of non-anxious adolescents, but no significant differences were found between anxious and non-anxious children. The findings for adolescents were consistent with the existing literature, although with stronger effects for parental lack of warmth than other, mainly community-based, studies have found. Finally, children and adolescents with anxiety disorders showed significantly higher levels of threat interpretation and avoidant strategies than non-anxious

children and adolescents. However, age significantly moderated the effect of anxiety disorder status; adolescents with anxiety disorders showed significantly higher levels of threat interpretation than non-anxious adolescents, but, again, there were no significant differences between anxious and non-anxious children. Taken together, these results underline the importance of taking age into account in order to improve understanding of the critical components of adolescent-specific treatments for anxiety disorders.

Chapter 1 General Introduction

1.1 Anxiety Disorders in Childhood and Adolescence

Anxiety disorders are among the most common psychiatric problems in childhood and adolescence (Costello, Egger, & Angold, 2005), with community-based studies demonstrating period prevalence rates of 9-32% of children and adolescents (Essau & Gabbidon, 2013), and worldwide prevalence rates estimated to be 6.5% (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Anxiety disorders in children and adolescents are typically comorbid, co-occurring with other anxiety disorders, mood, and behavioural disorders (e.g., Brady & Kendall, 1992; Last, Strauss, & Francis, 1987; Lewinsohn, Zinbarg, Seeley, Lewinsohn, & Sack, 1997). They are associated with a range of adverse outcomes, including an increased risk of subsequent anxiety, depression, illicit drug dependence and educational under-achievement as young adults (Kessler et al., 2011; Woodward & Fergusson, 2001).

Indeed, for the majority of adults with anxiety disorders and depression the onset of psychological difficulties was in childhood or adolescence (Kim-Cohen et al., 2003). For example, Gregory et al. (2007) found that amongst adults aged 32 years who met diagnostic criteria for an anxiety disorder, at least 50% had met diagnostic criteria for a psychiatric disorder between the age of 11 and 15 years, and more specifically, over a third had met criteria for an anxiety disorder in adolescence. This association between anxiety in children and adolescents and later mental health difficulties in adulthood has led some to describe anxiety disorders in childhood and adolescence as a 'gateway' disorder (Kendall, Settapani, & Cummings, 2012). In addition, recent longitudinal evidence suggests that for some

anxiety disorders, such as panic disorder with agoraphobia, an onset before the age of twenty, compared to an older onset, is associated with greater severity and worse course (Ramsawh, Weisberg, Dyck, Stout, & Keller, 2011).

Consistent with the previous version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994), DSM-5 (American Psychiatric Association, 2013) includes the following anxiety disorders: specific phobia, generalised anxiety disorder, social anxiety disorder (formerly social phobia), panic disorder and agoraphobia. In addition, separation anxiety disorder and selective mutism have been re-classified as anxiety disorders (rather than 'disorders usually first diagnosed in infancy, childhood or adolescence'). There is typically high comorbidity between these disorders which are all characterised by physiological arousal, behavioural disturbance, such as extreme avoidance of the feared objects, and associated distress and functional impairment (Beesdo, Knappe, & Pine, 2009).

1.2 Adolescence as a Distinct Developmental Period

Adolescence is a transitional developmental period, typically defined as the period of life between puberty and the age at which an individual attains a stable, independent role in society (Atwater, 1996). Although there is considerable individual and cultural variation, the findings from cross-cultural and animal studies (e.g., Gielen & Roopnarine, 2004; Macrì, Adriani, Chiarotti, & Laviola, 2002) provide evidence for identifiable characteristics post-puberty (e.g. increases in risk taking, peer influence, and self-consciousness) that suggest that adolescence can be viewed as a distinct developmental period (Erikson, 1968). Indeed, it has been argued that the biological, psychological and

social role changes that occur during this period are greater than at any other stage of life except infancy (Feldman & Elliott, 1990).

1.3 The Neglect of Anxious Adolescents in Research

Over the past 20 years, the field of research on anxiety disorders in children and adolescents has expanded rapidly. However, despite the recognition that adolescents differ from children (and adults), research has typically involved children and young people representing broad age ranges, with little focus on specific developmental periods (e.g., Hudson, Doyle, & Gar, 2009; Ollendick et al., 2009; Silverman et al., 1999). Many studies do not include adolescents (e.g., Beidel, Turner, & Morris, 2000; Mendlowitz et al., 1999; Muris, Meesters, & van Melick, 2002), or, where adolescents are included they make up a relatively small proportion of the group (e.g., only 25.8% of the sample in the large Child and Adolescent Anxiety Multimodal Study (CAMS) trial were aged 13 years or older, Peris et al., 2014). Few studies examine differences between age groups, making it difficult to know to what extent findings can be generalised to specific age groups. Consequently, researchers have called for further investigation of the adolescent period in particular (Kendall & Ollendick, 2004; Weisz & Hawley, 2002).

1.4 How Children and Adolescents Differ

To be able to fully understand the characteristics of clinically anxious adolescents, and how they may differ from their younger counterparts, it is necessary to consider the context of normative adolescent development and the specific developmental challenges of adolescence. There is an accumulating wealth of data on adolescents more generally,

suggesting that there are processes related to biology, genes, cognition, and multiple facets of the social environment that are specific to this developmental period.

1.4.1 Biological changes

Studies of brain development in adolescence suggest that this is a particularly sensitive period of development, where there are extensive and rapid neurological changes. Changes involving the stabilisation and pruning of synapses and changes in white matter, take place in areas such as the prefrontal cortex and other cortical areas (Gogtay et al., 2004), which are known to be involved in higher cognitive functions, such as reasoning, cognitive control of emotions, appraisal of risk versus reward, and motivation (Blakemore & Choudhury, 2006; Giedd, Keshavan, & Paus, 2008; Powers & Casey, 2015). There is some suggestion that these changes lead to an imbalance between brain regions that are involved in emotion reactivity (the amygdala) and those involved in emotion regulation (the ventromedial prefrontal cortex) (Casey & Lee, 2015). This is supported by evidence that on an emotion regulation task, adolescents show exaggerated amygdala activity and less effective extinction of fear, compared to children and adults (Hare et al., 2008). This is of particular interest as the interplay between these two brain regions has been implicated in the development and maintenance of anxiety (e.g., Rauch, Shin, & Phelps, 2006). Typically when faced with threat, the amygdala is activated, which plays an important role in emotional learning and control of fear responses (LeDoux, 2003). Once the threat is no longer present, one of the roles of the prefrontal cortex is to regulate emotion by inhibiting the amygdala response (LeDoux, 2003; Morgan, Romanski, & LeDoux, 1993; Sotres-Bayon & Quirk, 2010). Studies of clinically anxious adults show consistent deficits in fear extinction

following simple fear conditioning relative to controls (Lissek et al., 2005). Similarly, adolescents with high levels of self-reported trait anxiety show significantly less habituation to threat cues over repeated exposures, compared to those with low trait anxiety, and this is associated with less functional connectivity between ventral prefrontal cortex and amygdala (Hare et al., 2008).

Puberty also signifies major changes in hormones (e.g., rise in adrenal and gonadal hormones), and it is likely that structural neurological changes interact with hormonal changes to differentially affect neural circuits (Paus, Keshavan, & Giedd, 2008). There is some evidence that menarchal status is a stronger predictor of either an anxiety disorder or depression than a range of social indices, such as social stress and parental divorce (Patton et al., 1996). However, studies have not examined anxiety disorders without combining them with depression (e.g., Avenevoli & Steinberg, 2002), and therefore it is difficult to know whether effects are carried by mood disorders, especially given there is a large body of evidence for associations between puberty and depressive disorders (e.g., Angold & Worthman, 1993; Conley & Rudolph, 2009).

1.4.2 Genes

It appears that whilst some genetic factors are stable and influence the continuity of symptoms across time, there are other more dynamic age-specific genetic factors that emerge at certain time points (e.g., Topolski et al., 1997). More specifically, there is evidence that genes turn 'on' and 'off' over time and in particular, puberty marks a time when significant new genetic influences come online (Bergen, Gardner, & Kendler, 2007), often in conjunction with environmental cues (e.g., Whitelaw & Whitelaw, 2006). In other

words, as children move into adolescence, there are shifts in the relative contributions of genetic and environmental influences.

Overall, genetic effects make a significantly larger contribution to explaining the extent of anxiety symptoms in adolescence, compared to middle childhood (Eley & Stevenson, 1999; Feigon, Waldman, Levy, & Hay, 2001; Topolski et al., 1997), with heritability estimates of 65% for boys and 74% for girls (Ask, Torgersen, Seglem, & Waaktaar, 2014). In contrast, the shared environment (i.e. the factors that make members of a family similar to one another) appears to account for little or none of the variance in adolescent anxiety (e.g., Ask et al., 2014; Garcia et al., 2013; Lau, Eley, & Stevenson, 2006), consistent with reports of adolescents spending more time with their peers and away from their family (e.g., Larson & Richards, 1991). Heritability of anxiety symptoms appears to increase from middle to late adolescence and then stabilises from late adolescence to early adulthood, with no significant new genetic influences emerging during this period (Bergen et al., 2007; Garcia et al., 2013). Consistent with the dynamic nature of genetic influences, recent evidence shows that in childhood, symptoms of anxiety and depression have distinct phenotypic and genetic structures, whereas in adolescence they become more closely associated and share most of their genetic aetiology (Waszczuk, Zavos, Gregory, & Eley, 2014). Notably however, these data largely come from community studies measuring anxiety symptoms and therefore it is not clear to what extent these findings are applicable to adolescents with anxiety disorders.

1.4.3 Cognitive development

There is an extensive literature on cognitive development during adolescence, with theories emphasising greater capacity for abstract, hypothetical reasoning than children (Piaget & Inhelder, 1969), and increasing attentional capacity, processing speed, decision-making and goal setting that continues throughout the adolescent period (e.g., Anderson, Anderson, Northam, Jacobs, & Catroppa, 2001; Hooper, Luciana, Conklin, & Yarger, 2004), in line with prefrontal neurological development (Gogtay et al., 2004). These developments in cognition enable adolescents to process information, but also to reflect upon and observe their experiences, store, retrieve and reflect upon memories (Weisz & Hawley, 2002), leading them to be more self-aware and self-reflective than children (Blakemore & Choudhury, 2006) and leading to more global, stable explanatory styles (Nolen-Hoeksema, Girgus, & Seligman, 1992).

As a likely result of increased capacity for abstract, hypothetical thinking, in conjunction with biological and hormonal changes and an accumulation of new social experiences, the adolescent period is characterised by increased concern with peer evaluation and acceptance, awareness of social threat and a greater ability to anticipate possible negative outcomes (Kendall & Ollendick, 2004). While, in general, fears decrease during this period, fears of negative evaluation and self-consciousness increase (Alfano, Beidel, & Turner, 2002; Ollendick & Hirshfeld-Becker, 2002; Westenberg, Drewes, Goedhart, Siebelink, & Treffers, 2004).

In addition to normative changes in thinking styles, there is some suggestion that there may be differences in the nature of the association between thinking styles and affect between childhood and adolescence. Specifically there is evidence that in middle childhood

events, rather than explanatory style, predict high levels of negative affect, whereas by early adolescence, explanatory style on its own or in conjunction with life events becomes a significant predictor of affect (Nolen-Hoeksema et al., 1992). Thus, it is possible that cognitive accounts of disordered affect may begin to apply in adolescence. These models suggest that cognitive biases are associated with anxiety, as individuals misinterpret situations as threatening or dangerous, leading to anxiety and avoidance, which then creates a vicious cycle, reinforcing distorted beliefs (Beck & Clark, 1997). Support for this model comes from studies on adults demonstrating that individuals with elevated anxiety tend to interpret ambiguous information in a disproportionately threatening way (e.g., Amir, Beard, & Bower, 2005; Mathews & Mackintosh, 2000). There is some preliminary support for similar biases in adolescents from a community population (Miers, Blöte, Bögels, & Westenberg, 2008), although this has not yet been examined in adolescents with anxiety disorders or in contrast to younger age groups.

1.4.4 Environmental and social changes

The results of genetic studies suggest that non-shared environmental factors (i.e. the experiences that make members of a family different from each other) are of particular importance in understanding adolescent anxiety (e.g., Ask et al., 2014; Garcia et al., 2013; Lau et al., 2006). While studies cannot provide information about specific environmental risks, it is likely that they are associated with a range of contexts, including school, employment and peer relationships. By adolescence, it is also likely that family environment reflects non-shared features, as parenting is adapted in response to individual factors that relate to the young person.

1.4.4.1 Parenting

Theories of normative development have proposed that different parental responses are required to support emotional development in childhood and adolescence. One of the central tasks in adolescence is for the adolescent to separate from parents and become increasingly independent as they approach adulthood (Steinberg, 2001). This requires a renegotiation of the parent-child relationship and for parents to find an effective balance between autonomy and control (Steinberg & Silk, 2002). Additionally, there is evidence that in adolescence, parent-child relationships may involve lower levels of warmth and affection than in childhood (Steinberg, 2001). Although there do not appear to be higher rates of conflict between adolescents and parents, compared to children and parents (Steinberg, 2001), affect intensity during conflict has been shown to increase from early to mid-adolescence (Laursen, Coy, & Collins, 1998) and adolescents report decreasing rates of affectionate behaviour towards their parents as they get older (Eberly & Montemayor, 1999). Compared to children, adolescents undertake fewer shared activities with their parents and spend considerably less time with their family (Larson & Richards, 1991).

Parental behaviours, most notably overcontrol, rejection or a lack of warmth and expressed anxiety are hypothesized to promote anxiety among children and young people, especially among those who already experience elevated trait anxiety (Wood, McLeod, Sigman, Hwang, & Chu, 2003). Overcontrol is characterized by parental over-involvement, where the parent takes over doing tasks that the child is capable of doing independently and encourages the child to be excessively dependent on them, in an attempt to protect the child from possible distress or harm (e.g., McLeod, Wood, & Weisz, 2007; Rapee, 1997;

Rothbaum & Weisz, 1994; Wood, 2006). This is hypothesised to negatively impact on the child's sense of self-efficacy and limits his or her experience of novel situations (Chorpita & Barlow, 1998; Rapee, 1997; Wood, 2006). Two meta-analyses including studies of both community and clinical participants across childhood and adolescence, have found a medium-sized association between parental control and child anxiety (McLeod et al., 2007; van der Bruggen, Stams, & Bögels, 2008).

A further dimension of potential relevance is that of rejection, where the parent may be critical or hostile towards the child, or the relationship is characterized by a lack of warmth, involvement, emotional support or reciprocity (McLeod et al., 2007). This may increase the child's sensitivity to anxiety by undermining his or her ability to regulate emotion (Chorpita & Barlow, 1998; McLeod et al., 2007). Finally, parents may reinforce child anxiety by modelling and/or reinforcing anxious behaviours (Rachman, 1977), through 'anxious rearing' behaviours. In their meta-analysis, McLeod et al. (2007) reported a small but significant association between parental rejection and child anxiety.

Finally, there is some evidence that parental expressed anxiety promotes the development of anxious or fearful cognitions, behaviours and symptoms (Askew & Field, 2007; De Rosnay, Cooper, Tsigaras, & Murray, 2006; Gerull & Rapee, 2002; Grüner, Muris, & Merckelbach, 1999; Waters, Zimmer-Gembeck, & Farrell, 2012).

Parental behaviours have been implicated in the development and maintenance of anxiety in children and young people, however research has typically included children and young people from broad age ranges (e.g., Muris, Bögels, Meesters, van der Kamp, & van Oosten, 1996), so the degree to which findings apply to anxious adolescents specifically remains unclear. Certainly the evidence from the normative literature would suggest that

parenting of anxious adolescents may involve lower levels of warmth and higher levels of rejection/hostility than middle childhood, and that parental control may continue to be of relevance. This suggests that an examination of parenting of adolescents, as distinct from children, with anxiety disorders is required.

1.4.4.2 School and work environment

A number of studies show an increase in stress in early adolescence, compared to younger ages, and continuous high levels of stress during adolescence (Compas, 1987b; Hauser & Bowlds, 1990). This is typically characterised by multiple chronic daily hassles rather than major life events (Compas, 1987a; Wagner, Compas, & Howell, 1988), and it is likely that many of these stressors relate to the academic environment. There are substantial differences between school environments experienced by adolescents, compared to children, in that secondary schools are larger, have more bureaucratic structures and there is less personal contact with specific teachers, which can lead adolescents to feel more alienated than children in primary school environments (Eccles & Harold, 1993). A particular source of stress for adolescents appears to be around performance in GCSEs, with perceptions that success or failure is likely to, not only have a major impact on their prospects of doing well in life, but also on their self-identity and feelings of self-worth (Denscombe, 2000). Seiffge-Krenke (1995) found that while most adolescents are able to cope well with stressors, around a quarter of students use more dysfunctional coping styles (i.e., withdrawal and avoidant coping). For some adolescents, this leads to difficulties regularly attending school; approximately half of the adolescents

referred for treatment for school refusal meet criteria for one or more anxiety disorders (McShane, Walter, & Rey, 2001).

The UK Labour Force survey (Office for National Statistics, 2015) shows that around 20% of 16-17 year olds have a part-time job while still at school or college full-time, and prior to this many adolescents will be paid for casual work locally (Cole, Cole, & Lightfoot, 1996). While adolescents report many positive benefits of part-time work (Greenberger & Steinberg, 1986), there is some evidence that as certain employment characteristics (i.e., hours, job dissatisfaction and workload) increase, this is associated with higher levels of work-school conflict, which then negatively impacts academic achievement (Markel & Frone, 1998). There are no studies examining associations between adolescent work and anxiety symptoms, making it impossible to draw any conclusions in terms of what this means for anxious adolescents. At the very least though, it demonstrates that adolescence is characterised by the assumption of responsibilities across a number of different areas in life, which may create additional stress and challenge as well as benefits.

1.4.4.3 Peer and intimate relationships

Throughout the developmental period there are changes in who children and adolescents rely upon most often to fulfil their social needs. While pre-adolescent children report that they depend most on parents for support, early and middle adolescents report that they turn most often to friends (Furman & Buhrmester, 1992), spending more time interacting with their friends than with parents (Larson & Richards, 1991). This shift is seen to reflect increasing autonomy from parents and a need to establish collaborative, intimate friendships characterised by self-disclosure, particularly among girls (Buhrmester & Prager,

1995; McNelles & Connolly, 1999). Having a greater number of close same-sex friends in mid-adolescence predicts a greater number of other-sex peer networks a year later, which in turn predicts the emergence of future romantic relationships in late adolescence (Connolly, Furman, & Konarski, 2000). By the age of 15-16 years, between 40% and 50% of adolescents report a current romantic relationship (Feiring, 1996), and by late adolescence most young people will have experienced a romantic involvement of some degree of intensity (e.g., Hansen, 1977). In line with this, late adolescents report that they depend most on romantic partners for support (Furman & Buhrmester, 1992; Hendrick, Hendrick, & Adler, 1988).

A significant minority of adolescents experience victimisation and bullying, with estimates across countries ranging from 8.6% to 45.2% among boys, and from 4.8% to 35.8% among girls (Craig et al., 2009). Although studies have not examined whether there are higher levels of victimisation among adolescents, compared to children, there is a suggestion that during adolescence, as social networks and peer interactions become more sophisticated, so too does relational victimization (i.e., spreading rumours, friendship withdrawal and social exclusion) (Crick et al., 2001). Certainly the greater use of electronic technologies among adolescents compared to children, means that when peer victimisation occurs through the internet (e.g. through social networking sites, such as Facebook or Instagram), outside school hours, it is likely to have the greatest negative impact on adolescents (Kozłowska & Durheim, 2014).

Adolescents who report higher social anxiety symptoms tend to report less support from classmates and social acceptance, and for girls in particular, there is a relationship between higher levels of social anxiety and fewer friendships, and less intimacy,

companionship, and support in their close friendships (La Greca & Lopez, 1998). In addition, Erath, Flanagan, and Bierman (2007) found that the association between high levels of social anxiety symptoms and poor peer relations (i.e., decreased peer acceptance and increased peer victimization) was mediated by negative social performance expectations and maladaptive coping strategies (i.e. withdrawal and disengagement). A high level of anxiety is associated with poor social skills, making friendships more difficult and adolescents more vulnerable to peer victimisation (e.g., Crawford & Manassis, 2011). Longitudinal evidence points to relational victimisation, an absence of affiliation with a peer crowd (groups of individuals based on reputation or stereotype who may or may not spend much time together, e.g., being sporty) and negative interactions in close friendships predicting subsequent high social anxiety (La Greca & Harrison, 2005).

1.5 The Relevance of Normative Development to Clinically Anxious Adolescents

To summarise, adolescence is a sensitive period of rapid and extensive change across a range of domains. Although each domain has been presented here independently, they appear to interact with each other in a complex, dynamic relationship. Specifically, normative changes in brain development appear to lead to an imbalance between rapidly changing limbic circuitry and relatively slower developing prefrontal circuitry in adolescence, which is likely to be influenced by genetics, hormonal factors and (mainly non-shared) environmental factors. Increases in the influence of non-shared environmental factors are likely to reflect changes in the family environment, specifically greater adolescent autonomy and parent-child relationships that are characterised by less affection and greater affect intensity than seen in children. They are also likely to reflect higher levels

of stress (related to the academic environment as well as peer relationships) than are experienced in childhood, and changes in sources of support as adolescents develop supportive and intimate relationships with peers and romantic partners. These factors, along with greater cognitive capacity for abstract, hypothetical thinking and more stable attributional styles, may lead to a heightened sense of self-awareness/consciousness and less capacity to regulate emotions. Taken together, these findings suggest that the causal and maintaining influences on adolescent anxiety may be quite different to those operating in younger age groups and that this is likely to impact the expression of anxiety disorders, in terms of presenting disorders, severity and comorbidity, at the different ages.

1.6 Clinical Implications

If adolescents with anxiety disorders differ from their younger counterparts in meaningful ways, then this has important clinical implications. Currently, adolescents with an anxiety disorder typically receive psychological treatments, for the most part, Cognitive Behaviour Therapy (CBT). Across children and adolescents, the evidence demonstrates the effectiveness of CBT, with remission rates of around 60% (James, James, Cowdrey, Soler, & Choke, 2013). Most commonly, treatments for adolescents have been originally developed for other age groups (i.e., children or adults) and subsequently adapted (Weisz & Hawley, 2002). For example, Kendall et al.'s CBT treatment protocol for younger children, 'Coping Cat' (Kendall & Hedtke, 2006) was adapted for adolescents, to become the 'C.A.T. Project' (Kendall, 2002), while Panic Control Treatment for Adolescents (PCT-A; Pincus, Ehrenreich, & Mattis, 2008) was adapted from the adult treatment for panic disorder (Barlow, Craske, & Meadows, 1994).

Until recently, there has been little examination of whether this approach has led to different outcomes in treatment for adolescents compared to children (or adults), which is likely to reflect the fact that individual trials are rarely designed with sufficient levels of power to test for interaction effects and detect subgroup differences (Brookes et al., 2004). Results from a large trial and a recent meta-analysis have produced inconsistent findings. The CAMS trial (n = 488 participants; Ginsburg et al., 2011), found significantly lower remission rates for adolescents compared to children (36.1% of 12-17 year olds; 51.7% of 7-11 year olds). In contrast, a meta-analysis (n = 16 studies, 1171 participants; Bennett et al., 2013), which excluded the results from the CAMS trial, did not find that age moderated the effect of CBT, and nor did it find significant differences between adolescents and children in treatment effect sizes immediately post-treatment. Inconsistencies may reflect differences in sample characteristics (e.g., type of anxiety disorders, comorbidity and severity), as well as treatment characteristics (e.g., generic versus disorder-specific, length of sessions). Beyond this, it remains unclear how adolescents in routine clinical care settings fare compared to children, both immediately and in the longer term, given that participants in existing studies are often recruited through a variety of means including self-referral and those with comorbid mood disorders or other difficulties are often excluded from taking part (e.g., Baer & Garland, 2005; Ginsburg et al., 2011; Masia-Warner et al., 2005). Clearly, if anxiety disorders in adolescence are associated with poorer treatment outcomes than in children, better understanding of (i) the clinical characteristics of this group and (ii) the mechanisms that maintain anxiety disorders that might be amenable to psychological intervention among this group is likely to be beneficial.

In studies of CBT in adults, there is evidence for a significant relationship between threat reappraisal (i.e. identifying and challenging misinterpretation of threat/danger) and anxiety symptom severity reduction (Smits, Julian, Rosenfield, & Powers, 2012). This is consistent with the cognitive-behavioural model of anxiety, which, as noted earlier, is based on the assumption that improvements in maladaptive thinking will lead to improvements in anxiety symptoms (Beck & Clark, 1997). A focus on threat reappraisal in treatment has been extended to young people with anxiety disorders, based on the assumption that these information-processing biases found in adults are also found in children and adolescents. As yet, however, there are no studies examining threat interpretation biases in adolescents with anxiety disorders and therefore it is not clear whether a treatment focused on identifying and challenging cognitive biases is warranted.

Another area that may be amenable to change from psychological treatment is parenting behaviour. Parental behaviours, most notably overcontrol, lack of warmth and expressed anxiety are hypothesized to promote anxiety among children and young people, especially among those who already experience elevated trait anxiety (Wood et al., 2003). There is some evidence that treatment for child anxiety is associated with improvements in parenting and family functioning among children and adolescents aged 8-18 years and 7-17 years, respectively (Jongerden & Bögels, 2014; Keeton et al., 2013) and that for adolescents specifically, the association continues into the longer term (Jongerden & Bögels, 2014). However, although there is now a large body of research examining parenting behaviours and family functioning in relation to anxiety in young people, age has not typically been taken into account. Developing an understanding of the role of parental behaviours in

anxiety disorders in adolescents specifically, may provide opportunities to improve treatment effectiveness for this age group.

1.7 Aims of this Thesis

As identified earlier, there appears to be little integration of theoretical approaches to normative adolescent development to the treatment of clinically anxious adolescents, as called for by Holmbeck and Kendall (2002). The aim of this thesis is, first, to gain a greater understanding of the clinical characteristics of adolescents with anxiety disorders; and second, to investigate two dimensions that are likely to be amenable to psychological treatment, parenting characteristics and interpretation biases.

1.8 Outline of Papers

The four papers included in this thesis explore characteristics associated with anxiety disorders in adolescents with the aim of addressing gaps in the existing literature. The following section provides an overview of the research questions addressed by each paper.

1.8.1 Paper 1: Children and Adolescents Referred for Treatment of Anxiety Disorders: Differences in Clinical Characteristics

As outlined above, treatment programs for adolescents with anxiety disorders have often been developed with samples that are predominantly in middle childhood (e.g., Barrett, Rapee, & Dadds, 1996; Kendall, 1994), with very little theory or practice-research focusing on adolescents with anxiety disorders (Kendall, Hedtke, & Aschenbrand, 2013). A first step in establishing whether and how treatments may need to be adapted for

adolescents referred for treatment for anxiety disorders is determining whether their clinical characteristics differ from their younger counterparts. Most reports of the clinical characteristics of anxiety disorders include children and adolescents from a broad age range, e.g. 5-18 years (Last, Perrin, Hersen, & Kazdin, 1992), 7-17 years (Kendall et al., 2010), and there has been relatively little examination of whether differences apply between clinical populations of children and adolescents referred for treatment of anxiety disorders. In addition, whether other key characteristics that distinguish children and adolescents with anxiety disorders in community populations, such as the frequency of comorbid mood and behavioural disorders, are reflected in referred samples has not been thoroughly evaluated, as young people with comorbid mood disorders or other difficulties (such as school refusal) are often excluded from treatment studies (e.g., Kendall et al., 2010; Spence, 2011).

This paper compares the clinical characteristics of a consecutive series of children and adolescents referred to a routine clinical service for the treatment of anxiety disorders, and builds on previous work by including a representative sample of children and young people systematically assessed for the full range of anxiety disorders, and comorbid conditions. Specifically, it considers a range of factors that have been found to be associated with treatment outcome among youth with anxiety disorders: disorder subtypes (Ginsburg et al., 2011; Kerns, Read, Klugman, & Kendall, 2013), anxiety severity (Ginsburg et al., 2011; Liber et al., 2010; Southam-Gerow, Kendall, & Weersing, 2001), symptoms of other common comorbid conditions (i.e. other anxiety disorders, mood and behavioural problems) (Berman, Weems, Silverman, & Kurtines, 2000; Hudson et al., 2013), levels of school attendance (Last, Hansen, & Franco, 1998; Layne, Bernstein, Egan, & Kushner, 2003),

and finally, symptoms of psychopathology among caregivers (Berman et al., 2000; Cobham, Dadds, & Spence, 1998; Southam-Gerow et al., 2001).

On the basis of community and clinic-based studies, the hypotheses are that (i) adolescents with a primary anxiety disorder will be characterised by higher anxiety severity and more frequent social anxiety disorder, comorbid mood disorders, and irregular school attendance than children with a primary anxiety disorder and (ii) children will have more frequent separation anxiety disorder, and a greater number of comorbid anxiety disorders and behaviour disorders than adolescents. In addition, this paper also sets out to explore whether symptoms of anxiety, stress and depression in caregivers differ according to child/adolescent age group, and whether differences in clinical characteristics are moderated by child gender.

1.8.2 Paper 2: Parent-child Interactions and Adolescent Anxiety: A Systematic Review

Theoretical models have stressed the importance of family factors in the development and maintenance of anxiety in children and young people (e.g., Creswell, Murray, Stacey, & Cooper, 2011; Hudson & Rapee, 2004). There is evidence that parental behaviour that restricts autonomy and models anxious responses is associated with increased anxiety symptoms and anxiety disorders in youth (Barrett, Rapee, & Dadds, 1996; Grüner et al., 1999; McLeod et al., 2007; van der Bruggen et al., 2008), and that parental controlling behaviour (de Wilde & Rapee, 2008; Thirlwall & Creswell, 2010) and modelling of anxiety (De Rosnay et al., 2006; Gerull & Rapee, 2002) may have maintaining roles. Evidence relating to parental rejection is less consistent (McLeod et al., 2007). The degree

to which all these findings apply to adolescents specifically, however, remains unclear as the majority of studies examining the associations between parenting styles and anxiety in childhood have included children and young people from broad age ranges. Paper 2 reports on a systematic review of twenty two studies examining the associations between parental behaviours and anxiety among adolescents aged between 11 and 18 years. It examines the hypothesis that there will be an association between anxiety symptoms/diagnoses in adolescents and parenting behaviours that have been identified as relevant across broader age ranges or in younger children (i.e. control, anxious-rearing and a lack of warmth/rejection).

1.8.3 Paper 3: Observing Interactions between Children and Adolescents and Their Parents: The Effects of Anxiety Disorder and Age

One of the key findings from the systematic review presented in Paper 2, was that the majority of the studies suffered from methodological shortcomings, such as a reliance on adolescent reports of parenting and restriction to community populations, limiting conclusions that could be drawn about actual (rather than perceived) parental responses and clinical groups. A recommendation was, therefore, that systematic observational research should be conducted that included adolescents from referred, clinical populations, involving multiple informants and observational methods to assess parenting, to help identify the critical parental processes.

Paper 3 addresses this by using observational methods with clinically-referred children (aged 7-10 years) and adolescents (aged 13-16 years) with anxiety disorders,

alongside non-anxious children and adolescents, to examine the effects of anxiety disorder, age group and their interaction on a range of parenting behaviours that have been informed by the wider literature (McLeod et al., 2007; van der Bruggen et al., 2008), i.e. intrusiveness, anxiety, warmth, engagement and encouragement.

Paper 3 examines the hypotheses that (i) parents of offspring with anxiety disorders will exhibit significantly higher levels of intrusiveness and anxiety and significantly lower levels of positive behaviours (i.e. warmth, engagement and encouragement) than parents of non-anxious offspring, and (ii) parents of children will show significantly higher levels of intrusiveness and positive behaviours (i.e. warmth, engagement and encouragement) than parents of adolescents. In addition, given the lack of theory or prior evidence to guide directional hypotheses, it also explores whether offspring age group moderates the association between anxiety disorder status and parenting behaviours.

1.8.4 Paper 4: Interpretation of Ambiguity: Differences between Children and Adolescents With and Without an Anxiety Disorder

A central tenet of cognitive theories of anxiety in adults is the idea that anxious individuals are inclined to excessively infer future threat/danger in their environment and this leads to physiological arousal and behavioural avoidance, thus maintaining anxiety (Beck & Clark, 1997). This is supported by studies demonstrating that adults with elevated anxiety show a tendency to interpret ambiguous information in a disproportionately threatening way (Amir et al., 2005; Mathews & Mackintosh, 2000). Accordingly, CBT targets these cognitive processes (i.e. interpretation of threat/danger) so that the individual is able

to challenge his or her biased cognitions to think in a more realistic way. This approach has been extended to young people with anxiety disorders, based on the assumption that the information-processing biases found in adults are also found in children and adolescents. Although there is some evidence that this may be the case (e.g., Barrett, Rapee, Dadds, & Ryan, 1996; Chorpita, Albano, & Barlow, 1996; Creswell, Schneiring, & Rapee, 2005), age has not typically been taken into account in studies, which is surprising given the normative changes in cognition that occur throughout childhood, as outlined earlier (Nolen-Hoeksema et al., 1992; Steinberg, 2005). Paper 4 compares the responses of children (7-10 years) and adolescents (13-16 years), with and without anxiety disorders on an ambiguous scenarios task in order to identify whether associations between anxiety disorder status and interpretation biases differ in children and adolescents.

Paper 4 examines the hypothesis that children and adolescents with anxiety disorders will exhibit significantly higher levels of threat interpretation, anticipated negative emotion, predicted avoidant behaviours and lower levels of perceived control in response to ambiguity than non-anxious children and adolescents. It also sets out to explore whether differences between anxious and non-anxious groups are stronger for adolescents compared to children, i.e., whether age group moderates the association between anxiety disorder status and threat interpretation.

1.9 Summary

Anxiety disorders in children and adolescents are a common psychiatric problem, associated with a range of adverse outcomes that extend into adulthood. Although research and treatment has developed greatly over the past 20 years, adolescents have

been largely neglected, often receiving treatments designed for younger children or adults. Evidence from studies of normative development suggests that adolescence is a distinct phase of development, characterised by extensive changes in biology, brain development, genetic influences, cognitive, social and family functioning. This is of importance, as there is some, albeit mixed, evidence that following treatment adolescents with anxiety disorders have significantly lower remission rates, compared to anxious children. If we can determine whether and how anxious adolescents differ from children, this will provide guidance in order to develop and improve treatments. The four papers in this thesis have the collective aim of developing understanding of the characteristics of anxious adolescents who present to routine clinical services for treatment. Characteristics relating to clinical presentation, cognitive biases and parenting behaviours are focused upon as they are all areas that could be addressed through psychological treatment. Specifically the papers seek to (i) identify the clinical characteristics of adolescents with anxiety disorders and examine how they differ from those of children with anxiety disorder, (ii) elucidate the parenting characteristics that apply to adolescents within the existing literature, and then investigate them further through an observational study and, (iii) identify whether associations between anxiety disorder status and interpretation biases differ in children and adolescents. An overview of findings and a consideration of their implications for clinical interventions and research will then be discussed in a final concluding chapter.

1.10 References

- Alfano, C. A., Beidel, D. C., & Turner, S. M. (2002). Cognition in childhood anxiety: conceptual, methodological, and developmental issues. *Clinical Psychology Review, 22*(8), 1209-1238. doi: 10.1016/S0272-7358(02)00205-2
- American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (Fourth ed.). Arlington, VA: American Psychiatric Association.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (Fifth ed.). Arlington, VA: American Psychiatric Association.
- Amir, N., Beard, C., & Bower, E. (2005). Interpretation bias and social anxiety. *Cognitive Therapy and Research, 29*(4), 433-443 doi: 10.1007/s10608-005-2834-5
- Anderson, V. A., Anderson, P., Northam, E., Jacobs, R., & Catroppa, C. (2001). Development of executive functions through late childhood and adolescence in an Australian sample. *Developmental Neuropsychology, 20*(1), 385-406.
- Angold, A., & Worthman, C. W. (1993). Puberty onset of gender differences in rates of depression: a developmental, epidemiologic and neuroendocrine perspective. *Journal of Affective Disorders, 29*(2), 145-158.
- Ask, H., Torgersen, S., Seglem, K. B., & Waaktaar, T. (2014). Genetic and environmental causes of variation in adolescent anxiety symptoms: A multiple-rater twin study. *Journal of Anxiety Disorders, 28*(4), 363-371.
- Askew, C., & Field, A. P. (2007). Vicarious learning and the development of fears during childhood. *Behaviour Research and Therapy, 45*, 2616-2627. doi: 10.1016/j.brat.2007.06.008

- Atwater, E. (1996). *Adolescence* (Fourth ed.). New Jersey.
- Avenevoli, S., & Steinberg, L. (2002). The continuity of depression across the adolescent transition. *Advances in Child Development and Behavior*, *28*, 139-173.
- Baer, S., & Garland, E. J. (2005). Pilot study of community-based cognitive behavioral group therapy for adolescents with social phobia. *Journal of the American Academy of Child and Adolescent Psychiatry*, *44*(3), 258-264. doi: 10.1097/00004583-200503000-00010
- Barlow, D. H., Craske, M. G., & Meadows, E. A. (1994). *Mastery of your anxiety and panic*. New York: Graywind Publications.
- Barrett, P. M., Rapee, R. M., & Dadds, M. R. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology*, *64*, 333-342.
- Barrett, P. M., Rapee, R. M., Dadds, M. R., & Ryan, S. (1996). Family enhancement of cognitive style in anxious and aggressive children. *Journal of Abnormal Child Psychology*, *24*(2), 187-203.
- Beck, A. T., & Clark, D. A. (1997). An information processing model of anxiety: Automatic and strategic processes. *Behaviour Research and Therapy*, *35*(1), 49-58.
- Beesdo, K., Knappe, S., & Pine, D. S. (2009). Anxiety and anxiety disorders in children and adolescents: developmental issues and implications for DSM-V. *Psychiatric Clinics of North America*, *32*(3), 483-524.
- Beidel, D. C., Turner, S. M., & Morris, T. L. (2000). Behavioral treatment of childhood social phobia. *Journal of Consulting and Clinical Psychology*, *68*(6), 1072.
- Bennett, K., Manassis, K., Walter, S. D., Cheung, A., Wilansky-Traynor, P., Diaz-Granados, N., . . . Barrett, P. M. (2013). Cognitive behavioral therapy age effects in child and

- adolescent anxiety: An individual patient data metaanalysis. *Depression and Anxiety*, 30(9), 829-841. doi: 10.1002/da.22099
- Bergen, S. E., Gardner, C. O., & Kendler, K. S. (2007). Age-Related Changes in Heritability of Behavioral Phenotypes Over Adolescence and Young Adulthood: A Meta-Analysis. *Twin Research and Human Genetics*, 10(03), 423-433. doi: doi:10.1375/twin.10.3.423
- Berman, S. L., Weems, C. F., Silverman, W. K., & Kurtines, W. M. (2000). Predictors of outcome in exposure-based cognitive and behavioral treatments for phobic and anxiety disorders in children. *Behavior Therapy*, 31, 713-731.
- Blakemore, S. J., & Choudhury, S. (2006). Development of the adolescent brain: implications for executive function and social cognition. *Journal of Child Psychology and Psychiatry*, 47(3-4), 296-312. doi: 10.1111/j.1469-7610.2006.01611.x
- Brady, E. U., & Kendall, P. C. (1992). Comorbidity of anxiety and depression in children and adolescents. *Psychological Bulletin*, 111(2), 244.
- Brookes, S. T., Whitely, E., Egger, M., Smith, G. D., Mulheran, P. A., & Peters, T. J. (2004). Subgroup analyses in randomized trials: risks of subgroup-specific analyses: Power and sample size for the interaction test. *Journal of Clinical Epidemiology*, 57(3), 229-236. doi: 10.1016/j.jclinepi.2003.08.009
- Buhrmester, D., & Prager, K. (1995). Patterns and functions of self-disclosure during childhood and adolescence. In K. J. Rotenberg (Ed.), *Disclosure processes in children and adolescents. Cambridge studies in social and emotional development* (pp. 10-56). New York: Cambridge University Press.
- Casey, B. J., & Lee, F. S. (2015). Optimizing treatments for anxiety by age and genetics. *Annals of the New York Academy of Sciences*, 1-9. doi: 10.1111/nyas.12746

- Chorpita, B. F., Albano, A. M., & Barlow, D. H. (1996). Cognitive processing in children: Relation to anxiety and family influences. *Journal of Clinical Child Psychology, 25*, 170-176. doi: 10.1207/s15374424jccp2502_5
- Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: The role of control in early environment. *Psychology Bulletin, 124*, 3-21.
- Cobham, V. E., Dadds, M. R., & Spence, S. H. (1998). The role of parental anxiety in the treatment of childhood anxiety. *Journal of Consulting and Clinical Psychology, 66*(6), 893-905.
- Cole, M., Cole, S. R., & Lightfoot, C. (1996). *The development of children* (Third ed.). New York: W. H. Freeman & Company.
- Compas, B. E. (1987a). Coping with stress during childhood and adolescence. *Psychological Bulletin, 101*(3), 393.
- Compas, B. E. (1987b). Stress and life events during childhood and adolescence. *Clinical Psychology Review, 7*(3), 275-302. doi: 10.1016/0272-7358(87)90037-7
- Conley, C. S., & Rudolph, K. D. (2009). The emerging sex difference in adolescent depression: Interacting contributions of puberty and peer stress. *Development and Psychopathology, 21*(02), 593-620.
- Connolly, J., Furman, W., & Konarski, R. (2000). The role of peers in the emergence of heterosexual romantic relationships in adolescence. *Child Development, 71*(5), 1395-1408.
- Costello, E. J., Egger, H., & Angold, A. (2005). 10-Year Research Update Review: The Epidemiology of Child and Adolescent Psychiatric Disorders: I. Methods and Public

- Health Burden. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44(10), 972-986.
- Craig, W., Harel-Fisch, Y., Fogel-Grinvald, H., Dostaler, S., Hetland, J., Simons-Morton, B., . . . Due, P. (2009). A cross-national profile of bullying and victimization among adolescents in 40 countries. *International Journal of Public Health*, 54(2), 216-224.
- Crawford, A. M., & Manassis, K. (2011). Anxiety, social skills, friendship quality, and peer victimization: An integrated model. *Journal of Anxiety Disorders*, 25(7), 924-931. doi: 10.1016/j.janxdis.2011.05.005
- Creswell, C., Murray, L., Stacey, J., & Cooper, P. J. (2011). Parenting and child anxiety. In W. K. Silverman & A. P. Field (Eds.), *Anxiety disorders in children and adolescents* (2nd ed., pp. 299-322). Cambridge: Cambridge University Press.
- Creswell, C., Schneiring, C. A., & Rapee, R. M. (2005). Threat interpretation in anxious children and their mothers: comparison with nonclinical children and the effects of treatment. *Behaviour Research and Therapy*, 43, 1375-1381.
- Crick, N. R., Nelson, D. A., Morales, J. R., Cullerton-Sen, C., Casas, J. F., & Hickman, S. E. (2001). Relational victimization in childhood and adolescence. In J. Juvonen & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 196-214). New York: Guilford Press.
- De Rosnay, M., Cooper, P. J., Tsigaras, N., & Murray, L. (2006). Transmission of social anxiety from mother to infant: an experimental study using a social referencing paradigm. *Behaviour Research and Therapy*, 44, 1165-1175.
- de Wilde, A., & Rapee, R. M. (2008). Do controlling maternal behaviours increase state anxiety in children's responses to a social threat? A pilot study. *Journal of Behavior*

Therapy and Experimental Psychiatry, 39(4), 526-537. doi:

10.1016/j.jbtep.2007.10.011

- Denscombe, M. (2000). Social conditions for stress: young people's experience of doing GCSEs. *British Educational Research Journal*, 26(3), 359-374.
- Eberly, M. B., & Montemayor, R. (1999). Adolescent affection and helpfulness toward parents: A two-year follow-up. *Journal of Early Adolescence*, 19, 226-248.
- Eccles, J. S., & Harold, R. D. (1993). Parent-school involvement during the early adolescent years. *Teacher College Record*, 94, 568-587.
- Eley, T. C., & Stevenson, J. (1999). Exploring the covariation between anxiety and depression symptoms: A genetic analysis of the effects of age and sex. *Journal of Child Psychology and Psychiatry*, 40(8), 1273-1282.
- Erath, S. A., Flanagan, K. S., & Bierman, K. L. (2007). Social anxiety and peer relations in early adolescence: Behavioral and cognitive factors. *Journal of Abnormal Child Psychology*, 35(3), 405-416.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.
- Essau, C. A., & Gabbidon, J. (2013). Epidemiology, comorbidity and mental health service utilization. In C. A. Essau & T. H. Ollendick (Eds.), *The Wiley-Blackwell handbook of the treatment of childhood and adolescent anxiety* (First ed.). Chichester: Wiley-Blackwell.
- Feigon, S. A., Waldman, I. D., Levy, F., & Hay, D. A. (2001). Genetic and environmental influences on separation anxiety disorder symptoms and their moderation by age and sex. *Behavior Genetics*, 31(5), 403-411.

- Feiring, C. (1996). Lovers as friends: Developing conscious views of romance in adolescence. *Journal of Research on Adolescence, 7*, 214-224.
- Feldman, S. S., & Elliott, G. R. (Eds.). (1990). *At the threshold: The developing adolescent*. Cambridge, MA.: Harvard University Press.
- Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21*(6), 1016.
- Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development, 63*(1), 103-115.
- Garcia, S. E., Tully, E. C., Tarantino, N., South, S., Iacono, W. G., & McGue, M. (2013). Changes in genetic and environmental influences on trait anxiety from middle adolescence to early adulthood. *Journal of Affective Disorders, 151*(1), 46-53.
- Gerull, F. C., & Rapee, R. M. (2002). Mother knows best: Effects of maternal modelling on the acquisition of fear and avoidance behavior in toddlers. *Behavior Research and Therapy, 40*, 279-287.
- Giedd, J. N., Keshavan, M., & Paus, T. (2008). Why do many psychiatric disorders emerge during adolescence? *Nature Reviews Neuroscience, 9*(12), 947-957.
- Gielen, U. P., & Roopnarine, J. L. (2004). *Childhood and adolescence: Cross-cultural perspectives and applications*. New York: Greenwood Publishing Group.
- Ginsburg, G. S., Sakolsky, D., Piacentini, J., Walkup, J. T., Coffey, K. A., Keeton, C. P., . . . McCracken, J. T. (2011). Remission after acute treatment in children and adolescents with anxiety disorders: Findings from the CAMS. *Journal of Consulting and Clinical Psychology, 79*(6), 806–813. doi: 10.1037/a0025933

- Gogtay, N., Giedd, J. N., Lusk, L., Hayashi, K. M., Greenstein, D., Vaituzis, A. C., . . . Toga, A. W. (2004). Dynamic mapping of human cortical development during childhood through early adulthood. *Proceedings of the National Academy of Sciences of the United States of America*, *101*(21), 8174-8179.
- Greenberger, E., & Steinberg, L. (1986). *When teenagers work: The psychological and social costs of adolescent employment*. New York: Basic Books.
- Gregory, A. M., Caspi, A., Moffitt, T. E., Koenen, K., Eley, T. C., & Poulton, R. (2007). Juvenile mental health histories of adults with anxiety disorders.
- Grüner, K., Muris, P., & Merckelbach, H. (1999). The relationship between anxious rearing behaviours and anxiety disorders symptomatology in normal children. *Journal of Behavior Therapy and Experimental Psychiatry*, *30*, 27-35.
- Hansen, S. L. (1977). Dating choices of high school students. *Family Coordinator*, 133-138.
- Hare, T. A., Tottenham, N., Galvan, A., Voss, H. U., Glover, G. H., & Casey, B. J. (2008). Biological substrates of emotional reactivity and regulation in adolescence during an emotional go-nogo task. *Biological Psychiatry*, *63*(10), 927-934.
- Hauser, S. T., & Bowlds, M. K. (1990). Stress, coping, and adaptation. In S. S. Feldman & G. R. Elliott (Eds.), *At the threshold: The developing adolescent*. Cambridge, MA: Harvard University Press.
- Hendrick, S. S., Hendrick, C., & Adler, N. L. (1988). Romantic relationships: Love, satisfaction, and staying together. *Journal of Personality and Social Psychology*, *54*(6), 980.
- Holmbeck, G. N., & Kendall, P. C. (2002). Introduction to the special section on clinical adolescent psychology: Developmental psychopathology and treatment. *Journal of Consulting and Clinical Psychology*, *70*(1), 3.

- Hooper, C. J., Luciana, M., Conklin, H. M., & Yarger, R. S. (2004). Adolescents' performance on the Iowa Gambling Task: implications for the development of decision making and ventromedial prefrontal cortex. *Developmental Psychology, 40*(6), 1148.
- Hudson, J. L., Doyle, A. M., & Gar, N. (2009). Child and maternal influence on parenting behaviour in clinically anxious children. *Journal of Clinical Child and Adolescent Psychology, 38*(2), 256-262.
- Hudson, J. L., Lester, K. J., Lewis, C. M., Tropeano, M., Creswell, C., Collier, D. A., . . . Eley, T. C. (2013). Predicting outcomes following cognitive behaviour therapy in child anxiety disorders: the influence of genetic, demographic and clinical information. *Journal of Child Psychology and Psychiatry, 54*(10), 1086–1094.
- Hudson, J. L., & Rapee, R. M. (2004). From anxious temperament to disorder: An etiological model. In R. G. Heimberg, C. L. Turk & D. S. Mennin (Eds.), *Generalized anxiety disorder: Advances in research and practice* (pp. 51-74). New York: Guilford Press.
- Hudson, J. L., Rapee, R. M., Deveney, C., Schniering, C. A., Lyneham, H. J., & Bovopoulos, N. (2009). Cognitive-behavioral treatment versus an active control for children and adolescents with anxiety disorders: a randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*(5), 533-544.
- James, A. C., James, G., Cowdrey, F. A., Soler, A., & Choke, A. (2013). Cognitive behavioural therapy for anxiety disorders in children and adolescents (Review). *The Cochrane Library*(6). doi: DOI: 10.1002/14651858.CD004690.pub3
- Jongerden, L., & Bögels, S. M. (2014). Parenting, family functioning and anxiety-disordered children: Comparisons to controls, changes after family versus child CBT. *Journal of Child and Family Studies, 1*-14.

- Keeton, C. P., Ginsburg, G. S., Drake, K. L., Sakolsky, D., Kendall, P. C., Birmaher, B., . . . Piacentini, J. (2013). Benefits of child-focused anxiety treatments for parents and family functioning. *Depression and Anxiety, 30*(9), 865-872.
- Kendall, P. C. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 62*(1), 100-110.
- Kendall, P. C. (2002). *The C.A.T. project manual: For the cognitive-behavioral treatment of anxious adolescents: Workbook*.
- Kendall, P. C., & Chansky, T. E. (1991). Considering cognition in anxiety-disordered children. *Journal of Anxiety Disorders, 5*(2), 167-185.
- Kendall, P. C., Compton, S. N., Walkup, J. T., Birmaher, B., Albano, A. M., Sherrill, J., . . . Piacentini, J. (2010). Clinical characteristics of anxiety disordered youth. *Journal of Anxiety Disorders, 24*(3), 360-365. doi: 10.1016/j.janxdis.2010.01.009
- Kendall, P. C., & Hedtke, K. A. (2006). *The coping cat workbook: Workbook Pub*.
- Kendall, P. C., Hedtke, K. A., & Aschenbrand, S. G. (2013). Anxiety disorders. In D. A. Wolfe & E. J. Mash (Eds.), *Behavioral and emotional disorders in adolescents: Nature, assessment and treatment*. New York: The Guilford Press.
- Kendall, P. C., & Ollendick, T. H. (2004). Setting the research and practice agenda for anxiety in children and adolescence: A topic comes of age. *Cognitive and Behavioral Practice, 11*, 65-74.
- Kendall, P. C., Settapani, C. A., & Cummings, C. M. (2012). No need to worry: The promising future of child anxiety research. *Journal of Clinical Child and Adolescent Psychology, 41*(1), 103-115. doi: 10.1080/15374416.2012.632352

- Kerns, C. M., Read, K. L., Klugman, J., & Kendall, P. C. (2013). Cognitive behavioral therapy for youth with social anxiety: Differential short and long-term treatment outcomes. *Journal of Anxiety Disorders, 27*, 210– 215.
- Kessler, R. C., Cox, B. J., Green, J. G., Ormel, J., McLaughlin, K. A., Merikangas, K. R., . . . Swendsen, J. (2011). The effects of latent variables in the development of comorbidity among common mental disorders. *Depression and Anxiety, 28*(1), 29-39.
- Kim-Cohen, J., Caspi, A., Moffitt, T. E., Harrington, H., Milne, B. J., & Poulton, R. (2003). Prior juvenile diagnoses in adults with mental disorder: developmental follow-back of a prospective-longitudinal cohort. *Archives of General Psychiatry, 60*(7), 709-717. doi: doi:10.1001/archpsyc.60.7.709
- Kozłowska, K., & Durheim, E. (2014). Is bullying in children and adolescents a modifiable risk factor for mental illness? *Australian and New Zealand Journal of Psychiatry, 48*(3), 288-289.
- La Greca, A. M., & Harrison, H. M. (2005). Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology, 34*(1), 49-61.
- La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology, 26*(2), 83-94.
- Larson, R. W., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: changing developmental contexts. *Child Development, 62*, 284-300.
- Last, C. G., Hansen, C., & Franco, N. (1998). Cognitive-behavioral treatment of school phobia. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*(4), 404-411.

- Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1992). DSM-III-R anxiety disorders in children: Sociodemographic and clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*(6), 1070-1076.
- Last, C. G., Strauss, C. C., & Francis, G. (1987). Comorbidity among childhood anxiety disorders. *The Journal of nervous and mental disease, 175*(12), 726-730.
- Lau, J. Y. F., Eley, T. C., & Stevenson, J. (2006). Examining the state-trait anxiety relationship: a behavioural genetic approach. *Journal of Abnormal Child Psychology, 34*(1), 18-26.
- Laursen, B., Coy, K. C., & Collins, W. A. (1998). Reconsidering changes in parent-child conflict during adolescence: A meta-analysis. *Child Development, 69*, 817-832.
- Layne, A. E., Bernstein, G. A., Egan, E. A., & Kushner, M. G. (2003). Predictors of treatment response in anxious-depressed adolescents with school refusal. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(3), 319-326.
- LeDoux, J. (2003). The emotional brain, fear, and the amygdala. *Cellular and Molecular Neurobiology, 23*(4-5), 727-738.
- Lewinsohn, P. M., Zinbarg, R., Seeley, J. R., Lewinsohn, M., & Sack, W. H. (1997). Lifetime comorbidity among anxiety disorders and between anxiety disorders and other mental disorders in adolescents. *Journal of Anxiety Disorders, 11*(4), 377-394.
- Liber, J. M., van Widenfelt, B. M., van der Leendon, A. J. M., Goedhart, A. W., Utens, E. M. W. J., & Treffers, P. D. A. (2010). The relation of severity and comorbidity to treatment outcome with cognitive behavioral therapy for childhood anxiety disorders. *Journal of Abnormal Child Psychology, 38*, 683-694.

- Lissek, S., Powers, A. S., McClure, E. B., Phelps, E. A., Woldehawariat, G., Grillon, C., & Pine, D. S. (2005). Classical fear conditioning in the anxiety disorders: A meta-analysis. *Behaviour Research and Therapy, 43*(11), 1391-1424.
- Macrì, S., Adriani, W., Chiarotti, F., & Laviola, G. (2002). Risk taking during exploration of a plus-maze is greater in adolescent than in juvenile or adult mice. *Animal Behaviour, 64*(4), 541-546.
- Markel, K. S., & Frone, M. R. (1998). Job characteristics, work–school conflict, and school outcomes among adolescents: Testing a structural model. *Journal of Applied Psychology, 83*(2), 277.
- Masia-Warner, C., Klein, R. G., Dent, H. C., Fisher, P. H., Alvir, J., Albano, A. M., & Guardino, M. (2005). School-based intervention for adolescents with social anxiety disorder: Results of a controlled study. *Journal of Abnormal Child Psychology, 33*(6), 707-722.
- Mathews, A., & Mackintosh, B. (2000). Induced emotional interpretation bias and anxiety. *Journal of Abnormal Psychology, 109*(4), 602-615. doi: 10.1037/0021-843X.109.4.602
- McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review, 27*, 155-172.
- McNelles, L. R., & Connolly, J. A. (1999). Intimacy between adolescent friends: Age and gender differences in intimate affect and intimate behaviors. *Journal of Research on Adolescence, 9*(2), 143-159.
- McShane, G., Walter, G., & Rey, J. M. (2001). Characteristics of adolescents with school refusal. *Australian and New Zealand Journal of Psychiatry, 35*, 822-826.

- Mendlowitz, S. L., Manassis, K., Bradley, S., Scapillato, D., Mieziitis, S., & Shaw, B. E. (1999). Cognitive-behavioral group treatments in childhood anxiety disorders: The role of parental involvement. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*(10), 1223-1229. doi: 10.1097/00004583-199910000-00010
- Miers, A. C., Blöte, A. W., Bögels, S. M., & Westenberg, P. M. (2008). Interpretation bias and social anxiety in adolescents. *Journal of Anxiety Disorders, 22*, 1462–1471. doi: 10.1016/j.janxdis.2008.02.010
- Morgan, M. A., Romanski, L. M., & LeDoux, J. E. (1993). Extinction of emotional learning: Contribution of medial prefrontal cortex. *Neuroscience Letters, 163*(1), 109-113.
- Muris, P., Bögels, S. M., Meesters, C., van der Kamp, N., & van Oosten, A. (1996). Parental rearing practices, fearfulness, and problem behaviour in clinically referred children. *Personality and Individual Differences, 21*, 813-818. doi: 10.1016/0191-8869(96)00119-5
- Muris, P., Meesters, C., & van Melick, M. (2002). Treatment of childhood anxiety disorders: A preliminary comparison between cognitive-behavioral group therapy and a psychological placebo intervention. *Journal of Behavior Therapy and Experimental Psychiatry, 33*(3), 143-158.
- Nolen-Hoeksema, S., Girgus, J. S., & Seligman, M. E. (1992). Predictors and consequences of childhood depressive symptoms: A 5-year longitudinal study. *Journal of Abnormal Psychology, 101*, 405-422. doi: 10.1037/0021-843X.101.3.405
- Office for National Statistics. (2015). A01: Summary of labour market statistics.
- Ollendick, T. H., & Hirshfeld-Becker, D. R. (2002). The developmental psychopathology of social anxiety disorder. *Biological Psychiatry, 51*(1), 44-58.

- Ollendick, T. H., Öst, L. G., Reuterskiöld, L., Costa, N., Cederlund, R., Sirbu, C., . . . Jarrett, M. A. (2009). One-session treatment of specific phobias in youth: A randomized clinical trial in the United States and Sweden. *Journal of Consulting and Clinical Psychology, 77*(3), 504-516. doi: 10.1037/a0015158
- Patton, G., Hibbert, M., Carlin, J., Shao, Q., Rosier, M., Caust, J., & Bowes, G. (1996). Menarche and the onset of depression and anxiety in Victoria, Australia. *Journal of Epidemiology and Community Health, 50*(6), 661-666.
- Paus, T., Keshavan, M., & Giedd, J. N. (2008). Why do many psychiatric disorders emerge during adolescence? *Nature Reviews Neuroscience, 9*(12), 947-957.
- Peris, T. S., Compton, S. N., Kendall, P. C., Birmaher, B., Sherrill, J., March, J., . . . Piacentini, J. (2014). Trajectories of change in youth anxiety during cognitive-behavior therapy. *Journal of Consulting and Clinical Psychology*. doi: 10.1037/a0038402
- Piaget, J., & Inhelder, B. (1969). *The psychology of the child*. New York: Basic Books.
- Pincus, D. B., Ehrenreich, J. T., & Mattis, S. G. (2008). *Mastery of anxiety and panic for adolescents: Riding the wave (therapist guide)*. Oxford: Oxford University Press.
- Polanczyk, G. V., Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry, 56*(3), 345-365.
- Powers, A., & Casey, B. J. (2015). The adolescent brain and the emergence and peak of psychopathology. *Journal of Infant, Child, and Adolescent Psychotherapy, 14*(1), 3-15. doi: 10.1080/15289168.2015.1004889
- Rachman, S. (1977). The conditioning theory of fear acquisition: A critical examination. *Behaviour Research and Therapy, 15*, 375-387.

- Ramsawh, H. J., Weisberg, R. B., Dyck, I., Stout, R., & Keller, M. B. (2011). Age of onset, clinical characteristics and 15-year course of anxiety disorders in a prospective, longitudinal, observational study. *Journal of Affective Disorders, 132*(1–2), 260-264. doi: 10.1016/j.jad.2011.01.006
- Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review, 17*, 47-67.
- Rauch, S. L., Shin, L. M., & Phelps, E. A. (2006). Neurocircuitry models of posttraumatic stress disorder and extinction: human neuroimaging research - past, present, and future. *Biological Psychiatry, 60*(4), 376-382.
- Ronan, K. R. (1996). Building a reasonable bridge in childhood anxiety assessment: A practitioner's resource guide. *Cognitive and Behavioral Practice, 3*(1), 63-90.
- Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: a meta-analysis. *Psychological Bulletin, 116*, 55-74. doi: 10.1037/0033-2909.116.1.55
- Seiffge-Krenke, I. (1995). *Stress, coping, and relationships in adolescence*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Silverman, W. K., Kurtines, W. M., Ginsburg, G. S., Weems, C. F., Lumpkin, P. W., & Carmichael, D. H. (1999). Treating anxiety disorders in children with group cognitive-behavioral therapy: A randomized clinical trial. *Journal of Consulting and Clinical Psychology, 67*(6), 995.
- Smits, J. A., Julian, K., Rosenfield, D., & Powers, M. B. (2012). Threat reappraisal as a mediator of symptom change in cognitive-behavioral treatment of anxiety disorders: A systematic review. *Journal of Consulting and Clinical Psychology, 80*(4), 624.

- Sotres-Bayon, F., & Quirk, G. J. (2010). Prefrontal control of fear: More than just extinction. *Current Opinion in Neurobiology, 20*(2), 231-235.
- Southam-Gerow, M. A., Kendall, P. C., & Weersing, V. R. (2001). Examining outcome variability: Correlates of treatment response in a child and adolescent anxiety clinic. *Journal of Clinical Child Psychology, 30*(3), 422-436.
- Spence, S. H. (2011). A randomized controlled trial of online versus clinic-based CBT for adolescent anxiety. *Journal of Consulting and Clinical Psychology, 79*(5), 629-642. doi: 10.1037/a0024512
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1-19.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9*, 69-74. doi: 10.1016/j.tics.2004.12.005
- Steinberg, L., & Silk, J. S. (2002). Parenting adolescents. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (Second ed.). London: Lawrence Erlbaum Associates.
- Thirlwall, K., & Creswell, C. (2010). The impact of maternal control on children's anxious cognitions, behaviours and affect: an experimental study. *Behaviour Research and Therapy, 48*(10), 1041-1046.
- Topolski, T. D., Hewitt, J. K., Eaves, L. J., Silberg, J. L., Meyer, J. M., Rutter, M., . . . Simonoff, E. (1997). Genetic and environmental influences on child reports of manifest anxiety and symptoms of separation anxiety and overanxious disorders: A community-based twin study. *Behavior Genetics, 27*(1), 15-28.

- van der Bruggen, C. O., Stams, G. J. J. M., & Bögels, S. M. (2008). Research review: The relation between child and parent anxiety and parental control: a meta-analytic review. *Child Psychology and Psychiatry, 49*, 1257-1269.
- Wagner, B. M., Compas, B. E., & Howell, D. C. (1988). Daily and major life events: A test of an integrative model of psychosocial stress. *American Journal of Community Psychology, 16*(2), 189-205.
- Waite, P., & Creswell, C. (2014). Children and adolescents referred for treatment of anxiety disorders: Differences in clinical characteristics. *Journal of Affective Disorders, 167*, 326-332. doi: 10.1016/j.jad.2014.06.028
- Waszczuk, M. A., Zavos, H. S., Gregory, A. M., & Eley, T. C. (2014). The phenotypic and genetic structure of depression and anxiety disorder symptoms in childhood, adolescence, and young adulthood. *JAMA Psychiatry, 71*(8), 905-916. doi: 10.1001/jamapsychiatry.2014.655
- Waters, A. M., Zimmer-Gembeck, M. J., & Farrell, L. J. (2012). The relationships of child and parent factors with children's anxiety symptoms: Parental anxious rearing as a mediator. *Journal of Anxiety Disorders, 26*, 737-745.
- Weisz, J. R., & Hawley, K. M. (2002). Developmental factors in the treatment of adolescents. *Journal of Consulting and Clinical Psychology, 70*(1), 21-43.
- Westenberg, P. M., Drewes, M. J., Goedhart, A. W., Siebelink, B. M., & Treffers, P. D. A. (2004). A developmental analysis of self-reported fears in late childhood through mid-adolescence: social-evaluative fears on the rise? *Journal of Child Psychology and Psychiatry, 45*(3), 481-495.

- Whitelaw, N. C., & Whitelaw, E. (2006). How lifetimes shape epigenotype within and across generations. *Human Molecular Genetics*, *15*(suppl 2), R131-R137. doi: 10.1093/hmg/ddl200
- Wood, J. J. (2006). Parental intrusiveness and children's separation anxiety in a clinical sample. *Child Psychiatry and Human Development*, *37*, 73-87.
- Wood, J. J., McLeod, B. D., Sigman, M., Hwang, W., & Chu, B. C. (2003). Parenting and childhood anxiety: theory, empirical findings, and future directions. *Journal of Child Psychology and Psychiatry*, *44*, 134-151.
- Woodward, L. J., & Fergusson, D. M. (2001). Life course outcomes of young people with anxiety disorders in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(9), 1086-1093. doi: 10.1097/00004583-200109000-00018

**Chapter 2 Paper 1: Children and Adolescents Referred for Treatment of
Anxiety Disorders: Differences in Clinical Characteristics**

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Research report

Children and adolescents referred for treatment of anxiety disorders: Differences in clinical characteristics



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ABSTRACT

Background: Reports of the clinical characteristics of children and adolescents with anxiety disorders are typically based on community populations or from clinical samples with exclusion criterion applied. Little is known about the clinical characteristics of children and adolescents routinely referred for treatment for anxiety disorders. Furthermore, children and adolescents are typically treated as one homogeneous group although they may differ in ways that are clinically meaningful.

Methods: A consecutive series of children ($n=100$, aged 6–12 years) and adolescents ($n=100$, aged 13–18 years), referred to a routine clinical service, were assessed for anxiety and comorbid disorders, school refusal and parental symptoms of psychopathology.

Results: Children with a primary anxiety disorder were significantly more likely to be diagnosed with separation anxiety disorder than adolescents. Adolescents with a primary anxiety disorder had significantly higher self and clinician rated anxiety symptoms and had more frequent primary diagnoses of social anxiety disorder, diagnoses and symptoms of mood disorders, and irregular school attendance.

Limitations: Childhood and adolescence were considered categorically as distinct, developmental periods; in reality changes would be unlikely to occur in such a discrete manner.

Conclusions: The finding that children and adolescents with anxiety disorders have distinct clinical characteristics has clear implications for treatment. Simply adapting treatments designed for children to make the materials more 'adolescent-friendly' is unlikely to sufficiently meet the needs of adolescents.

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1. Introduction

Anxiety disorders typically have an early age of onset, with a mean of 10 years or younger (Keller et al., 1992; Orvaschel et al., 1995), and are among the most common psychiatric disorders experienced by children and adolescents (Essau and Gabbidon, 2013). They cause substantial impairment at school, home and socially (Essau et al., 2000; Wittchen et al., 1999) and, without treatment, often continue into adulthood and are associated with negative life course outcomes (Last et al., 1997; Pine et al., 1998). Consequently, it is of great importance to have a clear understanding of how anxiety disorders present in children and adolescents seeking treatment, in order to develop and refine effective treatments.

Randomized controlled trials of psychological treatments (most commonly Cognitive Behavior Therapy, CBT) for anxiety disorders in youth have typically included children and adolescents from a broad age range (e.g. 7–17 years, Walkup et al., 2009) and treatment programs have often been developed with samples that are predominantly in middle childhood (e.g. Barrett et al., 1996;

Kendall, 1994), with very little theory or practice-research focusing on adolescents with anxiety disorders (Kendall et al., 2013). A first step in establishing whether and how treatments may need to be adapted for adolescents referred for treatment for anxiety disorders is determining whether their clinical characteristics differ from their younger counterparts.

Understanding of the epidemiology of anxiety disorders in childhood and adolescence has been informed by a number of large community studies. The majority of studies have found that differences in the prevalence of particular anxiety disorders emerge as children move into adolescence, with decreased rates of separation anxiety disorder (SAD) (Cohen et al., 1993; Compton et al., 2000; Copeland et al., 2014; Costello, 2003) and increased rates of panic disorder, agoraphobia and obsessive compulsive disorder (OCD) among both sexes (Costello et al., 2003; Ford et al., 2003), and social anxiety disorder and GAD in girls (Copeland et al., 2014; Costello et al., 2003). There is also some evidence for a sharp decrease in anxiety disorders generally around the age of 11 to 12 years, as rates of SAD decline, before overall rates increase across disorders from early adolescence to young adulthood (Copeland et al., 2014).

Most reports of the clinical characteristics of anxiety disorders include children and adolescents from a broad age range, e.g. 5–18

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years (Last et al., 1992), 7–17 years (Kendall et al., 2010) and there has been relatively little examination of whether differences apply between clinical populations of children and adolescents referred for treatment of anxiety disorders. When children and adolescents seeking help for anxiety disorders have been compared the pattern of results is broadly consistent with community studies, with children having more symptoms and more frequent diagnoses of SAD and adolescents having more social anxiety symptoms/diagnoses (Compton et al., 2000; Esbjørn et al., 2010; Kendall et al., 2010). Indeed in a Danish sample of referred children and adolescents (Esbjørn et al., 2010), the frequency of social anxiety disorder diagnoses was over five times higher in adolescent boys, and over 10 times higher in adolescent girls, compared to the rates in children. Other differences in clinical characteristics between children and adolescents with anxiety disorders include greater comorbidity among children and higher clinician-rated severity among adolescents (in a research population with primary diagnoses of SAD, social anxiety disorder or generalized anxiety disorder (GAD) (Kendall et al., 2010)). These findings are important as elevated initial severity, the presence of social anxiety disorder and older age (7–11 years versus 12–17 years) have each been found to be associated with relatively poor treatment outcomes (Kendall et al., 2010).

Whether other key characteristics that distinguish children and adolescents with anxiety disorders in community populations, such as the frequency of comorbid mood and behavioral disorders, are reflected in referred samples has not been thoroughly evaluated, as young people with comorbid mood disorders or other difficulties, such as school refusal, are often excluded from treatment studies (e.g. Kendall et al., 2010). Nevertheless, higher levels of major depressive disorder (MDD) and lower levels of attention deficit disorder (ADD) have been found among adolescents compared to children with a diagnosis of overanxious disorder¹ (OAD) (Strauss et al., 1988). There is also some suggestion that difficulties in the school environment may be more common among adolescents; when examining youth with SAD, Francis et al. (1987) found that 100% of adolescents complained of physical symptoms in school days, compared to 58–69% of children. This is consistent with the finding that over 50% of adolescents who do not regularly attend school have an anxiety disorder (Last et al., 1998; McShane et al., 2001) and is important as school refusal has serious implications for development and functioning in adolescence and adulthood (Berman et al., 2000), and may present a challenge in delivering effective treatment for anxiety disorders (Albano, 1995).

The current study compares the clinical characteristics of a consecutive series of children and adolescents referred to a routine clinical service for the treatment of anxiety disorders and builds on previous work by including a representative sample of children and young people systematically assessed for the full range of anxiety disorders, and comorbid conditions. We considered a range of factors that have been found to be associated with treatment outcome among youth with anxiety disorders, specifically, disorder subtypes (Ginsburg et al., 2011; Kerns et al., 2013), anxiety severity (Ginsburg et al., 2011; Liber et al., 2010; Southam-Gerow et al., 2001), symptoms of other common comorbid conditions (i.e. other anxiety disorders, mood and behavioral problems (Berman et al., 2000; Hudson et al., 2013), levels of school attendance (Last et al., 1998; Layne et al., 2003) and symptoms of psychopathology among caregivers (Berman et al., 2000; Cobham et al., 1998; Southam-Gerow et al., 2001). On the basis

of community and clinic-based studies we hypothesized that adolescents with a primary anxiety disorder would be characterized by higher anxiety severity and more frequent social anxiety disorder, comorbid mood disorders, and irregular school attendance than children with a primary anxiety disorder. We also hypothesized that children would have more frequent SAD, and a greater number of comorbid anxiety disorders and behavior disorders than adolescents. As parental emotional difficulties have often been implicated in relation to treatment outcomes for children and adolescents with anxiety disorders (Berman et al., 2000; Cobham et al., 1998; Southam-Gerow et al., 2001), we also explored whether symptoms of anxiety, stress and depression in caregivers differed according to child/adolescent age group. Finally, as differences in clinical characteristics may be moderated by child gender (Esbjørn et al., 2010; Rao et al., 2007), we also explored the interaction between age group and gender in relation to the above variables.

2. Methods

2.1. Participants

All children and adolescents were referred by primary and secondary care services to the Berkshire Healthcare NHS Foundation Trust Child and Adolescent Mental Health Service (CAMHS) Anxiety and Depression Pathway, based at the University of Reading. This county-wide service accepts referrals for children and adolescents (up to 18 years) for the assessment and treatment of anxiety disorders. Referrals for those with a diagnosed comorbid autistic spectrum disorder (ASD) or learning disability are not accepted by this service, as they are seen within another specialist CAMHS team. In accordance with the removal of OCD and PTSD from the broad anxiety disorders category in DSM-5 (American Psychiatric Association, 2013), young people with a primary diagnosis of OCD are often referred directly to a specialist OCD service and young people with complex PTSD (e.g. where there has been abuse) would typically be referred directly to another specialist CAMHS team; therefore children and adolescents with OCD and PTSD are likely to be under-represented.

100 children between 6 and 12 years of age and 100 adolescents between 13 and 18 years of age, and their primary caregiver, were recruited. Both groups represent 100 consecutive assessments that were conducted between October 2012 and December 2013 for the children and between June 2012 and December 2013 for the adolescents. Table 1 provides demographic information for the children and adolescents in this study. Both groups contained a greater number of girls than boys, especially the adolescent group, but the gender difference between the age groups fell short of statistical significance ($\chi^2(1)=3.31, p=.07$). For the majority of children and adolescents, the primary caregiver taking part in the assessment was the child or adolescent's biological parent (for two children and one adolescent, the primary caregiver was a grandparent and one child had been adopted). As shown in Table 1, there were no significant differences in ethnicity, socio-economic status or caregiver gender between the age groups.

2.2. Procedure

Permission to use routine clinical information for research purposes was provided by the Clinical Audit Department of Berkshire Healthcare NHS Foundation Trust. Assessments were conducted at one time point and involved the child/adolescent and their primary caregiver being seen separately to undertake a diagnostic assessment (of the child/adolescent) and complete standardized questionnaires. All assessments were carried out by

¹ The diagnostic category of OAD (American Psychiatric Association, 1987) was characterized by excessive worries about multiple future and past events, and was replaced by Generalized Anxiety Disorder (GAD) in DSM-IV (American Psychiatric Association, 1994).

Table 1

Demographic information for all participants.

	Children (n=100)			Adolescents (n=100)			Statistic (children vs adolescents)
	Male (n=38)	Female (n=62)	All (n=100)	Male (n=26)	Female (n=74)	All (n=100)	
Age in months (mean [SD], range)	118.05 [17.44], 73–154	114.23 [21.03], 79–154	115.68 [19.74], 73–154	180.23 [2.94], 158–212	185.18 [16.88], 156–218	183.89 [16.49], 156–218	–
Ethnicity (% White British)	74%	84%	80%	100%	88%	91%	$\chi^2(10)=15.84, p=.10$
Family SES (% “higher professional”)	66%	65%	65%	65%	58%	60%	$\chi^2(2)=2.79, p=.25$
Caregiver gender (female:male)	33:5	58:4	91:9	23:3	70:4	93:7	$\chi^2(1)=.27, p=.60$

Note: SES=socio-economic status.

psychology graduates (assistant psychologists or trainee clinical psychologists) who received thorough training and regular supervision.

2.3. Measures

2.3.1. Diagnoses

Children and adolescents' diagnoses were determined using the ADIS-C/P (Silverman and Albano, 1996). This is a structured interview, with good psychometric properties (Silverman et al., 2001), designed to assess current DSM-IV anxiety disorders. Sections on current mood, behavioral disorders and school refusal were also administered. As is standard, if the child/adolescent met symptom criteria for a diagnosis, on the basis of his/her report or that of his/her parent, the assessor assigned a Clinician Severity Rating (CSR), ranging from 0 (absent or none) to 8 (very severely disturbing/disabling); a CSR of 4 or more based on the child/adolescent and/or parent report indicated the child met criteria for diagnosis. The diagnosis with the highest CSR was classed as the primary diagnosis. Overall reliability for the assessment team was very good; reliability for the ADIS-C/P diagnosis was .92 (child report) and .82 (caregiver report) and for CSR scores was .94 (child report) and .98 (caregiver report).

2.3.2. Symptom measures

The Spence Children's Anxiety Scale (SCAS-C/P) (Spence, 1998) assesses child/adolescent and parent-reported symptoms relating to six domains of anxiety: panic attacks/agoraphobia, separation anxiety, physical injury fears, social phobia, generalized anxiety and obsessive-compulsive symptoms. The SCAS includes 38 items to assess anxiety symptoms (and 6 positive filler items in the child version), each scored on a 4-point Likert scale, ranging from 0 (never) to 3 (always). The measure has been validated for use with children/adolescents aged from 6–18 years and both versions have good reliability, as well as discriminant and convergent validity (Nauta et al., 2004; Spence et al., 2003). Internal consistent for this scale was good to excellent (SCAS-C $\alpha = .82$; SCAS-P $\alpha = .91$).

The Short Mood and Feelings Questionnaire (SMFQ-C/P) (Angold et al., 1995) is a self-report measure to assess child/adolescent depression. There are versions for children/adolescents and parents to complete; both versions have 13 items and each item is scored on a 3-point scale ('not true', 'sometimes' or 'true'). The scale has been validated with children/adolescents aged 6–17 years and has good internal reliability and discriminant validity (Angold et al., 1995). Internal consistency for the SMFQ was good to excellent (SMFQ-C $\alpha = .77$; SMFQ-P $\alpha = .90$).

The conduct problems subscale of the Strengths and Difficulties Questionnaire (SDQ-P) (Goodman, 1997) was administered to assess parent-reported behavioral disturbance. Five items are scored on a 3-point scale ('not true', 'somewhat true' and 'certainly

true'). The scales show acceptable internal consistencies and retest reliability (Goodman, 2001). Although there is a version for children/adolescents aged from 11–17 years old to rate themselves, the parent-report version of the SDQ was used as parents are often considered to be most reliable in reporting on children's externalizing symptoms (Grills and Ollendick, 2003). Although internal consistency was poor (SDQ-P conduct problems $\alpha = .514$), this is likely to reflect the relatively low number of items in the subscale.

2.3.3. Caregivers' symptoms of anxiety, depression and stress

Caregivers' own symptoms of psychological functioning were assessed using the short-version of the Depression Anxiety Stress Scales (DASS) (Lovibond and Lovibond, 1995). This 21-item, self-report measure has three scales relating to symptoms of anxiety, stress and depression. Each scale consists of 7 items and items are scored using a scale of 0 to 3, where 0 'did not apply to me at all' and 3 'applied to me very much or most of the time'. The DASS-21 has been used with non-clinical and clinical populations and the scales show good internal consistency and concurrent validity (Antony et al., 1998). Internal consistency for the DASS was good to excellent (DASS-D $\alpha = .92$; DASS-A $\alpha = .85$; DASS-S $\alpha = .88$).

2.4. Data analysis

Main effects of age group and gender and the interaction of age group \times gender in predicting clinical characteristics were examined using binary logistic regression for dichotomous variables, and factorial analysis of variance for continuous variables. However, there were no significant effects of gender or gender \times age group interactions and so simple tests of association with age group are reported below (independent *t*-tests and Pearson's chi-square tests) for ease of interpretation. For non-Normally distributed data, differences were explored using non-parametric and parametric tests; as results did not differ, analyses using parametric tests will be reported. All tests were two-tailed. Because of small cell numbers in some cases, statistical analyses were only run for the most common disorders (SAD, GAD, social anxiety disorder and specific phobias). Descriptive data are given for all disorders and are presented in Tables 2 and 3.

3. Results

3.1. Primary disorder

Eighty-four percent of both the child and adolescent groups met criteria for an anxiety disorder as the primary diagnosis on the ADIS (see Table 2). Where this was not the case, 6% of children and 9% of adolescents had another primary disorder (of the children, 4% had ODD, 1% had ADHD and 1% had MDD; of the

Table 2
Child/adolescent primary disorder and Anxiety Disorder Severity Ratings as measured by the ADIS-C/P.

		Children			Adolescents			Statistic (children vs adolescents)
		Male (n=38)	Female (n=62)	All (n=100)	Male (n=26)	Female (n=74)	All (n=100)	
Anxiety disorders	SAD	5 (13%)	14 (23%)	19	2 (8%)	2 (3%)	4	$\chi^2(1)=11.33, p=.001$
	Social anxiety disorder	6 (16%)	11 (18%)	17	8 (33%)	21 (28%)	29	$\chi^2(1)=4.31, p=.04$
	GAD	8 (21%)	18 (29%)	26	6 (25%)	13 (18%)	19	$\chi^2(1)=1.49, p=.22$
	Specific phobia	4 (11%)	8 (13%)	12	3 (12%)	15 (20%)	18	$\chi^2(1)=1.46, p=.23$
	PD w/o agoraphobia	0	0	0	1 (4%)	2 (3%)	3	–
	PD with agoraphobia	0	0	0	3 (12%)	4 (5%)	7	–
	Agoraphobia w/o PD	1 (3%)	1 (2%)	2	1 (4%)	0	1	–
	PTSD	0	0	0	0	0	0	–
	OCD	2 (5%)	1 (2%)	3	0	3 (4%)	3	–
	ADNOS	2 (5%)	3 (5%)	5	0	0	0	–
Total anxiety disorders		28 (74%)	56 (90%)	84	24 (92%)	60 (81%)	84	–
CSR for anxiety disorder	4 (moderate)	9 (32%)	7 (13%)	16	1 (4%)	4 (5%)	5	–
	5 (moderate)	5 (18%)	22 (39%)	27	9 (38%)	20 (33%)	29	–
	6 (severe)	13 (46%)	24 (43%)	37	9 (38%)	21 (35%)	30	–
	7 (severe)	1 (4%)	3 (5%)	4	5 (21%)	15 (25%)	20	–
	8 (very severe)	0	0	0	0	0	0	–
CSR (mean [SD])		5.21 [.96]	5.41 [.78]	5.35 [.84]	5.75 [.85]	5.78 [.90]	5.77 [.88]	$t(166)=-3.22, p<.01$
Comorbid anxiety disorders (mean [SD])		0.61 [.96]	1.20 [1.20]	1.00 [1.15]	0.83 [.82]	0.82 [.79]	0.82 [.79]	$t(166)=1.17, p=.24$
Mood disorder	MDD	0	1 (2%)	1	1 (4%)	7 (9%)	8	–
	Dysthymic disorder	0	0	0	0	0	0	–
Other	ODD	4 (11%)	0	4	0	1 (1%)	1	–
	Conduct disorder	0	0	0	0	0	0	–
No disorder	ADHD	1 (3%)	0	1	0	0	0	–
		5 (13%)	5 (8%)	10	1 (4%)	6 (8%)	7	$\chi^2(1)=.58, p=.45$

Note: CSR= Clinical Severity Rating, SAD=separation anxiety disorder, PD=panic disorder, GAD=generalized anxiety disorder, PTSD=post-traumatic stress disorder, OCD=obsessive-compulsive disorder, ADNOS=anxiety disorder not otherwise specified, MDD=major depressive disorder, ODD=oppositional defiant disorder, ADHD=attention deficit hyperactivity disorder.

Table 3
Occurrence of all DSM-IV disorders and school refusal in children/adolescents with a primary anxiety disorder, as measured by the ADIS-C/P.

		Children			Adolescents			Statistic (children vs adolescents)
		Male (n=28)	Female (n=56)	All (n=84)	Male (n=24)	Female (n=60)	All (n=84)	
Anxiety disorder	SAD	9 (32%)	28 (50%)	37 (44%)	5 (21%)	10 (17%)	15 (18%)	$\chi^2(1)=13.48, p<.001$
	Social anxiety disorder	9 (32%)	29 (52%)	38 (45%)	14 (58%)	30 (50%)	44 (52%)	$\chi^2(1)=0.86, p=.35$
	GAD	12 (43%)	29 (52%)	41 (49%)	12 (50%)	34 (57%)	46 (55%)	$\chi^2(1)=0.60, p=.44$
	Specific phobia	8 (29%)	22 (39%)	30 (36%)	8 (33%)	18 (30%)	26 (31%)	$\chi^2(1)=0.43, p=.51$
	PD w/o agoraphobia	1 (4%)	0	1 (1%)	1 (4%)	4 (7%)	5 (6%)	–
	PD with agoraphobia	0	0	0	3 (13%)	4 (7%)	7 (8%)	–
	Agoraphobia w/o PD	1 (4%)	1 (2%)	2 (2%)	1 (4%)	0	1 (1%)	–
	PTSD	0	0	0	0	1 (2%)	1 (1%)	–
	OCD	2 (7%)	3 (5%)	5 (6%)	0	7 (12%)	7 (8%)	–
	ADNOS	2 (7%)	3 (5%)	5 (6%)	0	0	0	–
Total anxiety disorders		44	123	167	44	109	153	–
Anxiety disorders (mean [SD])		1.61 [.96]	2.20 [1.20]	2.00 [1.15]	1.83 [.82]	1.82 [.79]	1.82 [.79]	$t(166)=1.17, p=.24$
CSR for anxiety disorder	4 (moderate)	19 (43%)	48 (39%)	67 (40%)	12 (27%)	18 (16%)	30 (20%)	–
	5 (moderate)	8 (18%)	41 (33%)	49 (29%)	15 (34%)	47 (43%)	62 (40%)	–
	6 (severe)	15 (34%)	31 (25%)	46 (28%)	12 (27%)	29 (27%)	41 (27%)	–
	7 (severe)	2 (5%)	3 (3%)	5 (3%)	5 (12%)	15 (14%)	20 (13%)	–
	8 (very severe)	0	0	0	0	0	0	–
CSR (mean [SD])		5.00 (.99)	4.91 (.86)	4.93 (.89)	5.23 (.99)	5.38 (.92)	5.33 (.94)	$t(318)=-3.90, p<.001$
Mood disorder	MDD	1 (4%)	0	1 (1%)	3 (13%)	5 (8%)	8 (10%)	–
	Dysthymic disorder	2 (7%)	3 (5%)	5 (6%)	5 (21%)	11 (18%)	16 (19%)	–
Other	Total mood disorder	3	3	6	8	16	24	$\chi^2(1)=13.15, p<.001$
	Selective mutism	0	1 (2%)	1 (1%)	0	0	0	–
School refusal	ODD	1 (4%)	4 (7%)	5 (6%)	1 (4%)	4 (7%)	5 (6%)	–
	Conduct disorder	0	0	0	0	0	0	–
School refusal	ADHD	2 (7%)	3 (5%)	5 (6%)	1 (4%)	2 (3%)	3 (4%)	–
		1 (20%)	5 (9%)	6 (7%)	5 (21%)	10 (17%)	15 (18%)	$\chi^2(1)=4.41, p=.04$

Note: CSR=Clinical Severity Rating, SAD=separation anxiety disorder, PD=panic disorder, GAD=generalized anxiety disorder, PTSD=post-traumatic stress disorder, OCD=obsessive-compulsive disorder, ADNOS=anxiety disorder not otherwise specified, MDD=major depressive disorder, ODD=oppositional defiant disorder, ADHD=attention deficit hyperactivity disorder.

adolescents, 8% had MDD and 1% had ODD) and 10% of children and 7% of adolescents had a sub-clinical level of symptoms and so did not meet criteria for any disorder. The following analyses are conducted with children and adolescents with an anxiety disorder as the primary diagnosis.

3.2. Anxiety disorders

The frequency of primary DSM-IV diagnoses for both groups are shown in Table 2, and the overall frequency of anxiety disorders are shown in Table 3. Children were significantly more likely than adolescents to be diagnosed with SAD as the primary disorder or anywhere in the diagnostic profile; the odds of being diagnosed with SAD as the primary disorder were 5.85 times higher for children than adolescents (95% CI 1.89, 18.04) and the odds of being diagnosed with SAD overall were 3.62 times higher for children than adolescents (95% CI 1.79, 7.33). Adolescents were significantly more likely than children to be diagnosed with social anxiety disorder as the primary disorder, with the odds 2.08 higher for adolescents than children (95% CI 1.04, 4.17). The frequency of social anxiety disorder overall, however, was not significantly higher in the adolescents than the children. The differences between age groups for the frequency of GAD and specific phobias were not significant, either as the primary or overall diagnosis. The mean number of comorbid anxiety disorders was not significantly different for children (mean = 1.00, SD = 1.15) and adolescents (mean = .82, SD = .79; $t(166) = 1.17, p = .24$), and the same pattern was found when looking at the number of comorbid disorders associated with each of the most common primary anxiety disorders (SAD, GAD, social anxiety disorder and specific phobias). Clinician-rated severity levels for both the primary anxiety disorder and for all anxiety disorders were significantly higher for adolescents than children, with effect sizes in the small to medium range (primary anxiety disorder CSR $d = .49$; all anxiety disorder CSR $d = .44$).

3.3. Comorbid mood disorders

Adolescents with a primary anxiety disorder were significantly more likely to be diagnosed with a comorbid mood disorder (MDD or dysthymic disorder) than children, with the odds 5.20 higher (95% CI 2.00, 13.52) for adolescents than for children (see Table 3).

3.4. School refusal

Significantly more adolescents than children with a primary anxiety disorder were not regularly attending school; the odds

were 2.83 higher (95% CI 1.04, 7.69) for adolescents than for children (see Table 3).

3.5. Symptom measures

Means and standard deviations for all symptom measures can be found in Table 4. Adolescents with a primary anxiety disorder scored significantly higher than children with a primary anxiety disorder on both self-reported symptoms of anxiety and depression, with small to medium effect sizes (SCAS-C $d = .32$; SMFQ-C $d = .37$). Differences between groups were not significant for caregiver-reported child/adolescent symptoms of anxiety, depression or behavioral disturbance or for caregiver symptoms of anxiety, stress and depression.

4. Discussion

Among a consecutive series of referrals for treatment for anxiety disorders, the majority of children and adolescents (84%) were appropriate, meeting diagnostic criteria for a primary anxiety disorder. Where this was not the case, around half the children and adolescents did not meet clinical thresholds, and the other half had either a primary mood (particularly among adolescents) or behavioral (particularly among children) disorder. Consistent with the hypotheses, adolescents with a primary anxiety disorder were significantly more likely than children to (i) be rated by a clinician as having more severe anxiety for both the primary anxiety disorder and anxiety disorders overall and rate themselves as having higher levels of anxiety symptoms, (ii) be diagnosed with social anxiety disorder as the primary disorder, (iii) be diagnosed with a comorbid mood disorder and rate themselves as having higher levels of depressive symptoms, and (iv) have irregular school attendance. In addition, more adolescents than children were diagnosed with panic disorder and/or agoraphobia (but due to the small numbers in children, this difference was not tested statistically). Also consistent with the hypotheses, children with a primary anxiety disorder were significantly more likely to be diagnosed with SAD than adolescents as either the primary anxiety disorder or anywhere in the diagnostic profile. Contrary to hypotheses, there were no significant differences in the frequency of behavioral disorders or symptoms of conduct problems, however there were relatively low levels of comorbid behavioral disturbance in both groups. Although there were a greater number of girls than boys in both age groups, gender was not significantly associated with any of the clinical characteristics either on its own or in an interaction with age. We also did not find significant differences between the age groups on the frequency of GAD and specific phobias (as primary disorders or overall), the frequency of

Table 4
Summary of means, standard deviations and statistics for self-report data for children/adolescents with a primary anxiety disorder.

	Children			Adolescents			Statistic (children vs adolescents)
	Male ($n_{max} = 28$)	Female ($n_{max} = 56$)	All ($n_{max} = 84$)	Male ($n_{max} = 24$)	Female ($n_{max} = 60$)	All ($n_{max} = 84$)	
Child/adolescent Report							
SCAS total	35.14 (15.20)	39.26 (17.38)	37.84 (16.68)	38.95 (15.32)	44.43 (14.92)	42.97 (15.12)	$t(158) = -2.04, p = .04$
SMFQ total	6.29 (4.37)	7.19 (5.56)	6.88 (5.17)	8.39 (6.13)	9.77 (8.58)	9.38 (7.94)	$t(158) = -2.36, p = .02$
Caregiver Report							
SCAS	30.79 (15.28)	36.63 (14.01)	34.59 (14.64)	40.65 (21.80)	37.44 (18.96)	38.34 (19.71)	$t(160) = -1.37, p = .17$
SMFQ	6.89 (5.77)	7.16 (5.91)	7.07 (5.83)	9.48 (7.88)	8.55 (6.78)	8.81 (7.07)	$t(161) = -1.72, p = .09$
SDQ conduct	2.39 (1.95)	2.11 (1.94)	2.20 (1.94)	1.57 (1.38)	1.98 (1.75)	1.86 (1.65)	$t(159) = 1.22, p = .23$
DASS-Dep	5.26 (6.33)	7.69 (8.99)	6.85 (8.21)	7.50 (9.46)	6.75 (8.02)	6.96 (8.41)	$t(159) = -0.09, p = .93$
DASS-Anx	4.30 (4.63)	5.92 (7.90)	5.35 (6.94)	4.00 (4.49)	6.21 (7.60)	5.56 (6.89)	$t(157) = -1.19, p = .85$
DASS-Stress	9.93 (6.00)	13.63 (7.97)	12.37 (7.53)	11.58 (8.00)	11.90 (8.72)	11.81 (8.48)	$t(163) = 0.45, p = .66$

Note: Where data was missing, this was less than 10% of the dataset. DASS=Depression Anxiety and Stress Scales, Dep=Depression, Anx=Anxiety, SCAS=Spence Child Anxiety Scale, SDQ=Strengths and Difficulties Questionnaire, SMFQ=Short Moods and Feelings Questionnaire.

social anxiety disorder overall, frequency of comorbid anxiety disorders or for symptoms of psychopathology among primary caregivers.

Consistent with the results of community studies (Cohen et al., 1993; Compton et al., 2000; Copeland et al., 2014; Costello, 2003; Costello et al., 2003; Ford et al., 2003), in this clinical population we found significantly lower rates of SAD in adolescents compared to children, a higher frequency of panic disorder and agoraphobia and social anxiety disorder as a primary diagnosis. However, unlike community studies (e.g. Copeland et al., 2014; Costello, 2003), when we considered diagnoses of social anxiety disorder anywhere in the diagnostic spectrum, we did not find significant differences according to age. In other words, social anxiety disorder is not more common among adolescents compared to children, but it was more likely to be causing the greatest disturbance. Whether this is due to increasing social demands that may come with adolescence requires further exploration.

We found that adolescents' anxiety symptoms were rated as more severe than the children, replicating findings from two other studies of clinical populations (Kendall et al., 2010; Strauss et al., 1988) and that adolescents experienced higher levels of comorbid depressive disorders, also consistent with findings from a clinical population (Strauss et al., 1988). This is of particular note in light of Wittchen et al.'s (2003) finding that more severe anxiety disorders were associated with an increased risk of subsequent depression. This may reflect more pervasive interference with the ability to undertake important educational, social and leisure activities and achieve crucial milestones among adolescents. In addition, difficulties regularly attending school are commonly associated with anxiety (Francis et al., 1987; Last et al., 1998); we found that this was particularly the case among adolescents. It is of interest, however, that greater levels of symptom severity, mood disorders and difficulties attending school are not mirrored by increased symptoms of depression, anxiety and stress among caregivers of adolescents.

4.1. Strengths

The strengths of this research are that the young people come from a routine clinical service for young people with anxiety and depression and unlike existing studies (e.g. Francis et al., 1987; Kendall et al., 2010; Rao et al., 2007; Strauss et al., 1988) include young people with the full range of anxiety disorders, comorbid mood disorders, school refusal and previous non-response to treatment. As such, results are likely to be broadly generalizable to other children and adolescents within standard clinical care settings. A further strength is that extensive assessments were undertaken by trained and reliable assessors, using standardized clinical interviews and well-validated self-report measures, with the young people and their caregivers assessed separately to increase reliability (Costello, 1989).

4.2. Limitations

Nevertheless, there are limitations to the study, in that age was considered within two categories, determined on the basis that childhood and adolescence can be seen as distinct, developmental periods (Erikson, 1968); in reality changes would be unlikely to occur in such a discrete manner, and future studies should aim to look at still narrower age bands. In addition, children and adolescents were from a predominantly White British ethnic background and from relatively high socio-economic backgrounds. The sample did not include children or adolescents identified with ASD and young people with OCD and PTSD may also be under-represented.

4.3. Implications for treatment

The finding that children and adolescents referred for treatment for anxiety disorders have distinct clinical characteristics has clear implications for treatment and suggests that adapting treatments designed for children to make the materials more 'adolescent-friendly' is unlikely to sufficiently meet the needs of adolescents. Indeed, all of the characteristics which distinguished adolescents from children with a primary anxiety disorder have been found to be associated with reduced remission following treatment (Ginsburg et al., 2011). It is of importance, therefore, that programs are designed and delivered that adequately address these characteristics in the treatment of anxiety disorders in adolescence.

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Conflict of interest

None.

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References

- Albano, A.M., 1995. Treatment of social anxiety in adolescents. *Cogn. Behav. Pract.* 2, 271–298.
- American Psychiatric Association, 1987. *Diagnostic and Statistical Manual of Mental Disorders, Third - revised ed.* American Psychiatric Association, Washington DC.
- American Psychiatric Association, 1994. *Diagnostic and Statistical Manual of Mental Disorders, Fourth ed.* American Psychiatric Association, Arlington, VA.
- American Psychiatric Association, 2013. *Diagnostic and statistical manual of mental disorders, Fifth ed.* American Psychiatric Association, Arlington, VA.
- Angold, A., Costello, E.J., Messer, S.C., Pickles, A., Winder, F., Silver, D., 1995. Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *Int. J. Methods Psychiatr. Res.* 5.
- Antony, M.M., Bieling, P.J., Cox, B.J., Enns, M.W., Swinson, R.P., 1998. Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychol. Assess.* 10, 176–181.
- Barrett, P.M., Rapee, R.M., Dadds, M.R., 1996. Family treatment of childhood anxiety: a controlled trial. *J. Consult. Clin. Psychol.* 64, 333–342.
- Berman, S.L., Weems, C.F., Silverman, W.K., Kurtines, W.M., 2000. Predictors of outcome in exposure-based cognitive and behavioral treatments for phobic and anxiety disorders in children. *Behav. Ther.* 31, 713–731.
- Cobham, V.E., Dadds, M.R., Spence, S.H., 1998. The role of parental anxiety in the treatment of childhood anxiety. *J. Consult. Clin. Psychol.* 66, 893–905.
- Cohen, P., Cohen, J., Kasen, S., Velez, C.N., Hartmark, C., Johnson, J., Rojas, M., Brook, J., Streuning, E.L., 1993. An epidemiological study of disorders in late childhood and adolescence - I. Age- and gender-specific prevalence. *J. Child Psychol. Psychiatry Allied Discip.* 34, 851–867.
- Compton, S.N., Nelson, A.H., March, J.S., 2000. Social phobia and separation anxiety symptoms in community and clinical samples of children and adolescents. *J. Am. Acad. Child Adolesc. Psychiatry* 39, 1040–1045.
- Copeland, W.E., Angold, A., Shanahan, L., Costello, E.J., 2014. Longitudinal patterns of anxiety from childhood to adulthood: the great smoky mountains study. *J. Am. Acad. Child Adolesc. Psychiatry* 53, 21–33.
- Costello, E.J., 1989. Child psychiatric disorders and their correlates: a primary care pediatric sample. *J. Am. Acad. Child Adolesc. Psychiatry* 28, 851–855.
- Costello, E.J., 2003. Prevalence and development of psychiatric disorders in childhood and adolescence. *Arch. Gen. Psychiatry* 60, 837.
- Costello, E.J., Mustillo, S., Erkanli, A., Keeler, G., Angold, A., 2003. Prevalence and development of psychiatric disorders in childhood and adolescence. *Arch. Gen. Psychiatry* 60, 837–844.
- Erikson, E.H., 1968. *Identity: Youth and Crisis.* Norton, New York.
- Esbjörn, B.H., Hoeyer, M., Dyrborg, J., Leth, I., Kendall, P.C., 2010. Prevalence and comorbidity among anxiety disorders in a national cohort of psychiatrically referred children and adolescents. *J. Anxiety Disord.* 24, 866–872.

- Essau, C.A., Conradt, J., Petermann, F., 2000. Frequency, comorbidity and psychosocial impairment of anxiety disorders in German adolescents. *J. Anxiety Disord.* 14, 263–279.
- Essau, C.A., Gabbidon, J., 2013. Epidemiology, comorbidity and mental health service utilization. In: Essau, C.A., Ollendick, T.H. (Eds.), *The Wiley-Blackwell Handbook of The Treatment of Childhood and Adolescent Anxiety*, First ed. Wiley-Blackwell, Chichester.
- Ford, T., Goodman, R., Meltzer, H., 2003. The British child and adolescent mental health survey 1999: the prevalence of DSM-IV disorders. *J. Am. Acad. Child Adolesc. Psychiatry* 42, 1203–1211.
- Francis, G., Last, C.G., Strauss, C.C., 1987. Expression of separation anxiety disorder: the roles of age and gender. *Child Psychiatry Human Dev.* 18, 82–89.
- Ginsburg, G.S., Sakolsky, D., Piacentini, J., Walkup, J.T., Coffey, K.A., Keeton, C.P., Iyengar, S., Kendall, P.C., Compton, S.N., Albano, A.M., Sherrill, J., Rynn, M.A., McCracken, J.T., 2011. Remission after acute treatment in children and adolescents with anxiety disorders: findings from the CAMS. *J. Consult. Clin. Psychol.* 79, 806–813.
- Goodman, R., 1997. The strengths and difficulties questionnaire: a research note. *J. Child Psychol. Psychiatry Allied Discip.* 38, 581–586.
- Goodman, R., 2001. Psychometric properties of the strengths and difficulties questionnaire. *J. Am. Acad. Child Adolesc. Psychiatry* 40, 1337–1345.
- Grills, A.E., Ollendick, T.H., 2003. Multiple informant agreement and the Anxiety Disorders Interview Schedule for parents and children. *J. Am. Acad. Child Adolesc. Psychiatry* 42, 30–40.
- Hudson, J.L., Lester, K.J., Lewis, C.M., Tropeano, M., Creswell, C., Collier, D.A., Cooper, P., Lynham, H.J., Morris, T., Rapee, R.M., Roberts, S., Donald, J.A., Eley, T.C., 2013. Predicting outcomes following cognitive behaviour therapy in child anxiety disorders: the influence of genetic, demographic and clinical information. *J. Child Psychol. Psychiatry* 54, 1086–1094.
- Keller, M.B., Lavori, P.W., Wounder, J., Beardslee, W.R., Schwartz, L.E., Roth, J., 1992. Chronic course of anxiety disorders in children and adolescents. *J. Am. Acad. Child Adolesc. Psychiatry* 31, 595–599.
- Kendall, P.C., 1994. Treating anxiety disorders in children: results of a randomized clinical trial. *J. Consult. Clin. Psychol.* 62, 100–110.
- Kendall, P.C., Compton, S.N., Walkup, J.T., Birmaher, B., Albano, A.M., Sherrill, J., Ginsburg, G., Rynn, M., McCracken, J., Gosch, E., Keeton, C., Bergman, L., Sakolsky, D., Suveg, C., Iyengar, S., March, J., Piacentini, J., 2010. Clinical characteristics of anxiety disordered youth. *J. Anxiety Disord.* 24, 360–365.
- Kendall, P.C., Hedtke, K.A., Aschenbrand, S.G., 2013. Anxiety Disorders. In: Wolfe, D.A., Mash, E.J. (Eds.), *Behavioral and Emotional Disorders in Adolescents: Nature, Assessment and Treatment*. The Guilford Press, New York, USA.
- Kerns, C.M., Read, K.L., Klugman, J., Kendall, P.C., 2013. Cognitive behavioral therapy for youth with social anxiety: differential short and long-term treatment outcomes. *J. Anxiety Disord.* 27, 210–215.
- Last, C.G., Hansen, C., Franco, N., 1997. Anxious children in adulthood: a prospective study of adjustment. *J. Am. Acad. Child Adolesc. Psychiatry* 36, 645–652.
- Last, C.G., Hansen, C., Franco, N., 1998. Cognitive-behavioral treatment of school phobia. *J. Am. Acad. Child Adolesc. Psychiatry* 37, 404–411.
- Last, C.G., Perrin, S., Hersen, M., Kazdin, A.E., 1992. DSM-III-R Anxiety disorders in children: sociodemographic and clinical characteristics. *J. Am. Acad. Child Adolesc. Psychiatry* 31, 1070–1076.
- Layne, A.E., Bernstein, G.A., Egan, E.A., Kushner, M.G., 2003. Predictors of treatment response in anxious-depressed adolescents with school refusal. *J. Am. Acad. Child Adolesc. Psychiatry* 42, 319–326.
- Liber, J.M., van Widenfelt, B.M., van der Leendon, A.J.M., Goedhart, A.W., Utens, E.M. W.J., Treffers, P.D.A., 2010. The relation of severity and comorbidity to treatment outcome with cognitive behavioral therapy for childhood anxiety disorders. *J. Abnorm. Child Psychol.* 38, 683–694.
- Lovibond, S.H., Lovibond, P.F., 1995. *Manual for the Depression Anxiety Stress Scales*, 2nd ed. Psychology Foundation, Sydney.
- McShane, G., Walter, G., Rey, J.M., 2001. Characteristics of adolescents with school refusal. *Aust. N. Z. J. Psychiatry* 35, 822–826.
- Nauta, M.H., Scholing, A., Rapee, R.M., Abbott, M., Spence, S.H., Waters, A., 2004. A parent-report measure of children's anxiety: psychometric properties and comparison with child-report in a clinic and normal sample. *Behav. Res. Ther.* 42, 813–839.
- Orvaschel, H., Lewinsohn, P.M., Seeley, J.R., 1995. Continuity of psychopathology in a community sample of adolescents. *J. Am. Acad. Child Adolesc. Psychiatry* 34, 1525–1535.
- Pine, D., Cohen, P., Gurley, D., Brook, J., Ma, Y., 1998. The risk for early adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Arch. Gen. Psychiatry* 55, 56–64.
- Rao, P.A., Beidel, D.C., Turner, S.M., Ammerman, R.T., Crosby, L.E., Sallee, F.R., 2007. Social anxiety disorder in childhood and adolescence: descriptive psychopathology. *Behav. Res. Ther.* 45, 1181–1191.
- Silverman, W.K., Albano, A.M., 1996. *The Anxiety Disorders Interview Schedule for DSM-IV – Child and Parent Versions*. Psychological Corporation, San Antonio, TX.
- Silverman, W.K., Saavedra, L.M., Pina, A.A., 2001. Test-retest reliability of anxiety symptoms and diagnoses with the anxiety disorders interview schedule for DSM-IV: child and parent versions. *J. Am. Acad. Child Adolesc. Psychiatry* 40, 937–944.
- Southam-Gerow, M.A., Kendall, P.C., Weersing, V.R., 2001. Examining outcome variability: correlates of treatment response in a child and adolescent anxiety clinic. *J. Clin. Child Psychol.* 30, 422–436.
- Spence, S.H., 1998. A measure of anxiety symptoms among children. *Behav. Res. Ther.* 36, 545–566.
- Spence, S.H., Barrett, P.M., Turner, C.M., 2003. Psychometric properties of the Spence Children's Anxiety Scale with young adolescents. *J. Anxiety Disord.* 17, 605–625.
- Strauss, C.C., Lease, C.A., Last, C.G., Francis, G., 1988. Overanxious disorder: an examination of developmental differences. *J. Abnorm. Psychol.* 16, 433–443.
- Walkup, J., Albano, A., Piacentini, J., Birmaher, B., Compton, S., Sherrill, J., Ginsburg, G., Rynn, M., McCracken, J., Waslick, B., Iyengar, S., March, J., Kendall, P.C., 2009. Cognitive behavioural therapy, Sertraline, or a combination in childhood anxiety. *N. Engl. J. Med.* 359, 2753–2766.
- Wittchen, H.U., Beesdo, K., Bittner, A., Goodwin, R.D., 2003. Depressive episodes – evidence for a causal role of primary anxiety disorders? *Eur. Psychiatry* 18, 384–393.
- Wittchen, H.U., Stein, M.B., Kessler, R.C., 1999. Social fears and social phobia in a community sample of adolescents and young adults: prevalence, risk factors and co-morbidity. *Psychol. Med.* 29, 309–323.

**Chapter 3 Paper 2: Parent-child Interactions and Adolescent Anxiety: A
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Parent-Child Interactions and Adolescent Anxiety: A Systematic Review

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Abstract

Parental behaviours have been implicated in the development and maintenance of anxiety in children and young people; however the degree to which findings apply to adolescents specifically remains unclear. We conducted a systematic review of studies examining the evidence for an association between parental behaviours and adolescent anxiety. Twenty two studies were identified. The results of this systematic review provide fairly consistent preliminary evidence for an association between anxiety and perceived parental control and anxious rearing in adolescence. The findings relating to an association between adolescent anxiety and perceived parental rejection and lack of warmth are somewhat less consistent. Methodological shortcomings in the studies mean that these results should be interpreted with caution. Future research should be conducted using observational and experimental design with adolescents from referred, clinical populations to help identify the critical parental processes and clarify the direction of effects.

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Keywords: adolescent, anxiety, parenting, systematic review

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Introduction

Adolescent Anxiety

Anxiety disorders are among the most common mental health problems experienced by children and young people (Costello, Egger, & Angold, 2005) and, if left untreated, typically persist into adulthood and impact negatively on life course outcomes (Last, Hansen, & Franco, 1997; Pine, Cohen, Gurley, Brook, & Ma, 1998). The evidence suggests that, as children move into adolescence, particular anxiety disorders become more common (Costello, Copeland, & Angold, 2011) with increased rates of panic disorder, agoraphobia and obsessive compulsive disorder among both sexes (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Ford, Goodman, & Meltzer, 2003) and increased rates of social phobia in girls (e.g. Costello et al., 2003). There also appear to be higher levels of co-morbid depression in adolescents with an anxiety disorder compared to children (e.g. Kendall et al., 2010).

The increased rates of particular anxiety disorders and co-morbid depression in adolescence, compared to childhood, may not be surprising given that adolescence is a critical transitional period between childhood and

adulthood and a time of huge biological, psychological and social change (Feldman & Elliott, 1990; Holmbeck et al., 2000). Despite this, most research to date has been conducted with adults or younger children, leaving adolescents with anxiety as an under-researched group (Kendall & Ollendick, 2004). Similarly, evidence-based treatments have been developed principally for adults (Weisz & Hawley, 2002) or for children most typically aged between 7 and 14 years (Kendall & Ollendick, 2004). Where treatments are available specifically for adolescents with anxiety, they are often developed for younger age groups and then subsequently adapted for adolescents. While generally effective, there remains considerable room for improvement. The identification of factors associated with the development and maintenance of anxiety disorders in adolescents is clearly required to improve both our understanding and treatment outcomes.

The Role of Parenting in the Development and Maintenance of Childhood Anxiety

Theoretical models have stressed the importance of family factors in the development and maintenance of anxiety in children and young people (e.g. Creswell, Murray, Stacey, & Cooper, 2011; Hudson & Rapee, 2004) and include a broad range of factors, such as genetics, parental anxiety and/or depression, adverse life events, as well as parenting behaviours. The aetiology and maintenance of anxiety is likely to be multifactorial and the relative contribution of different factors remains unknown. Nevertheless, there is a great deal of research suggesting that parent behaviours may be an important contributory factor (Rapee, Schniering, & Hudson, 2009).

Typically the research literature on parenting and anxiety in children and young people has been divided into the two broad dimensions of control and rejection (e.g. McLeod, Wood, & Weisz, 2007; Rapee, 1997; Rothbaum & Weisz, 1994). The dimension of parental control is characterised by over-involvement, where the child is encouraged to be excessively dependent on the parent, in an attempt to protect the child from harm, and a lack of autonomy-granting, where the parent does not encourage the child to develop their own opinions and make decisions for themselves (Rapee, 1997). It has been suggested that a lack of autonomy-granting may prevent children from developing a strong sense of self-efficacy and that this increases their sense of vulnerability to threat and heightened anxiety (Chorpita & Barlow, 1998; Wood, 2006). The second dimension, parental rejection, involves withdrawal from or hostility towards the child and a lack of warmth, involvement, emotional support or reciprocity with the child. This is hypothesized to undermine the child's emotion regulation, thus increasing their sensitivity to anxiety (McLeod et al., 2007). From their meta-analysis of 47 studies examining the association between childhood anxiety and parenting, McLeod et al. (2007) found a medium sized association between parental control and child anxiety, but a small association between parental rejection and child anxiety. Van der Bruggen, Stams and Bögels (2008) also found child anxiety to be significantly associated with observed parental control, with a medium overall effect size. Findings from experimental studies have further supported a maintaining role of parental controlling behaviours by demonstrating that increasing parental controlling behaviours leads to increased anxious responses among children and young people, at least among more inhibited children (de Wilde & Rapee, 2008; Thirlwall & Creswell, 2010). In addition to the two broad constructs of control and rejection, it has been hypothesised that parents may influence the development and maintenance of anxiety in children and adolescents through modelling and reinforcing anxious behaviour (Rachman, 1977). Where this has been evaluated some studies have considered a broad concept of parental anxious rearing behaviour, where parents encourage anxious cognitions and avoidance behaviour in their child (e.g. Barrett, Rapee, Dadds, & Ryan, 1996; Grüner, Muris, & Merckelbach, 1999) and there is some evidence that children's perceptions of parental anxious rearing is associated with higher levels of child anxiety (Grüner et al., 1999; Waters, Zimmer-Gembeck, & Farrell, 2012). Furthermore, experimental and prospective longitudinal research has shown that observing parents responding in an anxious manner leads to an increase in children's anxious responses (e.g. De Rosnay, Cooper, Tsigaras, & Murray, 2006; Gerull & Rapee, 2002).

In summary, there is evidence that parental behaviour that restricts autonomy and models anxious responses is associated with increased anxiety symptoms and anxiety disorders in youth, and that these may have a maintaining role. Evidence relating to parental rejection is less consistent. The majority of studies examining the associations between parenting styles and anxiety in childhood that have been conducted to date, however, have included children and young people from broad age ranges. Thus, to be included in McLeod et al.'s (2007) meta-analysis, the mean age of participants in studies had to be less than 19 years, and studies ranged from a mean

age of 2.0 years to 18.8 years. While mean age was examined as a potential moderator in this review, the included studies did not typically group children and adolescents into cohorts based on distinct developmental stages, so the extent to which the findings apply to adolescents remains unclear. This is an important consideration as the normative function and role of parents in development changes dramatically as children move into and through adolescence (Furman & Buhrmester, 1992).

Parenting in Adolescence

Although adolescence is a period of increasing separation and developing independence, evidence confirms the importance of the family unit during this period and that parents continue to exert significant influence on their adolescent (e.g. Feldman & Elliott, 1990; Garnezy & Rutter, 1983). It is commonly believed that one of the central tasks as a parent during this developmental stage is to encourage the adolescent's autonomy (Hill & Holmbeck, 1986; McElhaney, Allen, Stephenson, & Hare, 2009) so that the adolescent can learn to make their own decisions and choices in life and move towards functioning independently (Soenens, Berzonsky, Vansteenkiste, Beyers, & Goossens, 2005). This is then hypothesised to lead to better adjustment and psychosocial functioning (Deci & Ryan, 2000). As part of this process, typically adolescents' relationships with their parents undergo a stressful period during early and middle adolescence, as the family negotiates issues of control and autonomy (Paikoff & Brooks-Gunn, 1991; Steinberg, 1990). Given the central role of parental control in many theories of childhood anxiety and the normative developmental role of parents in adolescence, specific consideration of the association between parental behaviours and anxiety in adolescence is required. One possibility, for example, is that parental control may be particularly problematic in terms of anxiety during adolescence when the young person may require a particular parental focus on autonomy promotion. Or, alternatively, parental behaviours may generally be less influential during adolescence, compared to childhood, as young people become more open to influence of others, such as peers, beyond the immediate family (Furman & Buhrmester, 1992).

Although meta-analyses indicate no significant difference between child only and child and parent interventions for anxiety disorders in childhood and adolescence (e.g. Reynolds, Wilson, Austin, & Hooper, 2012), few studies have been sufficiently powered to address differential effects of parent-focussed interventions at different child ages and where this has been addressed results have been inconsistent. For example, Barrett, Rapee and Dadds (1996) and Cobham, Dadds and Spence (1998) found no added benefit from adding a parental component to individual CBT among their older groups (aged 11-14 years), but did find a benefit in terms of child treatment outcomes for younger children. Bodden et al. (2008), however, failed to find improved outcomes from including a parental component regardless of the child or young person's age. It is unclear whether these different findings reflect differences in the content of the interventions delivered with parents across studies or differences in the degree to which parental responses were modified by the interventions. Thus, it remains unclear whether changing parental behaviours may be more or less pertinent to treatment outcomes at particular child ages.

Summary

In summary, particular anxiety disorders in adolescents are more common than in younger age groups and appear to be more frequently co-morbid with depression. Despite this, there is a paucity of research that is specifically focussed on anxiety in adolescence, with the majority of studies focussing on younger children. Parental behaviours have been implicated in the development and maintenance of anxiety in children and young people, however research has typically included children and young people from broad age ranges so the degree to which findings apply to adolescents specifically remains unclear. The aim of this review, therefore, is to examine the evidence for an association between parenting behaviours and anxiety in adolescence.

Method

Inclusion Criteria

To be included in the review, studies had to meet the following inclusion criteria:

1. Published as a full paper in a peer-reviewed journal.

2. All participants within a distinct group are aged between 11 (or the equivalent year or grade of education if age was general) and 18 years. For longitudinal analyses, adolescent anxiety is assessed and analysed during time points within this age range.
3. Include a standardised measure of adolescent anxiety or the adolescent has been diagnosed with an anxiety disorder. If the measure is of internalizing problems, symptoms of anxiety and depression must be differentiated for the analysis in order to ensure that there is a measure of anxiety. Studies of adolescents with a medical condition (e.g. diabetes) are not included.
4. Include a measure of parenting during the adolescent period in relation to a specific adolescent and the association between parenting and adolescent anxiety is tested significantly. Studies are excluded if they do not include a direct measure of parenting (e.g. studies of attachment or family environment are not included), or do not include a target adolescent.
5. Written in English. Non-English papers were documented, but were not included in the review due to a lack of resources and facilities for translation.

Preliminary Search Strategy

The literature search was conducted using Web of Science (1970 to July 2013) and the NHS Evidence Healthcare Databases (formerly The National Library for Health databases) which incorporates results from MEDLINE (1950 to July 2013), PsychInfo (1806 to July 2013) and EMBASE (1980 to July 2013). Consistent with McLeod et al.'s (2007) meta-analysis, we used 12 anxiety-related key terms: *internaliz**, *anxi**, *worry*, *fear**, *obses**, *compul**, *OCD*, *panic*, *phobi**, *inhibit**, *shy** and *somat**. These were crossed with key terms to identify parenting dimensions: *mother*, *maternal*, *father*, *paternal*, *parent**, *rearing*, *parent* style*, *parent* behav** and *expressed emotion*, and key terms to identify studies involving adolescents: *adol**, *youth* and *teenage**.

In addition, reference lists of primary studies identified by the database searches were scanned to identify further studies of interest. The key journals were identified by analysing the results of the database searches to identify the journals that contained the largest number of relevant studies. They were then hand searched, in particular to identify recent publications that had not yet been included and indexed by electronic databases.

Study Selection

The selection process was piloted by applying the inclusion criteria to a sample of papers in order to check that they could be reliably interpreted and that the studies were classified appropriately. This phase was used to refine and clarify the inclusion criteria. Two of the authors (PW and LW) independently screened titles and abstracts and then full papers. Any disagreements about study eligibility were discussed and resolved by consensus with the third author (CC) after referring to the protocol. Inter-assessor reliability for whether studies met the inclusion criteria was high ($K = .87$). Figure 1 presents the flow chart that shows the number of studies remaining at each stage, following guidelines from PRISMA (Moher, Liberati, Tetzlaff, & Altman, 2009). Where studies met more than one exclusion criteria, the primary exclusion criterion is shown.

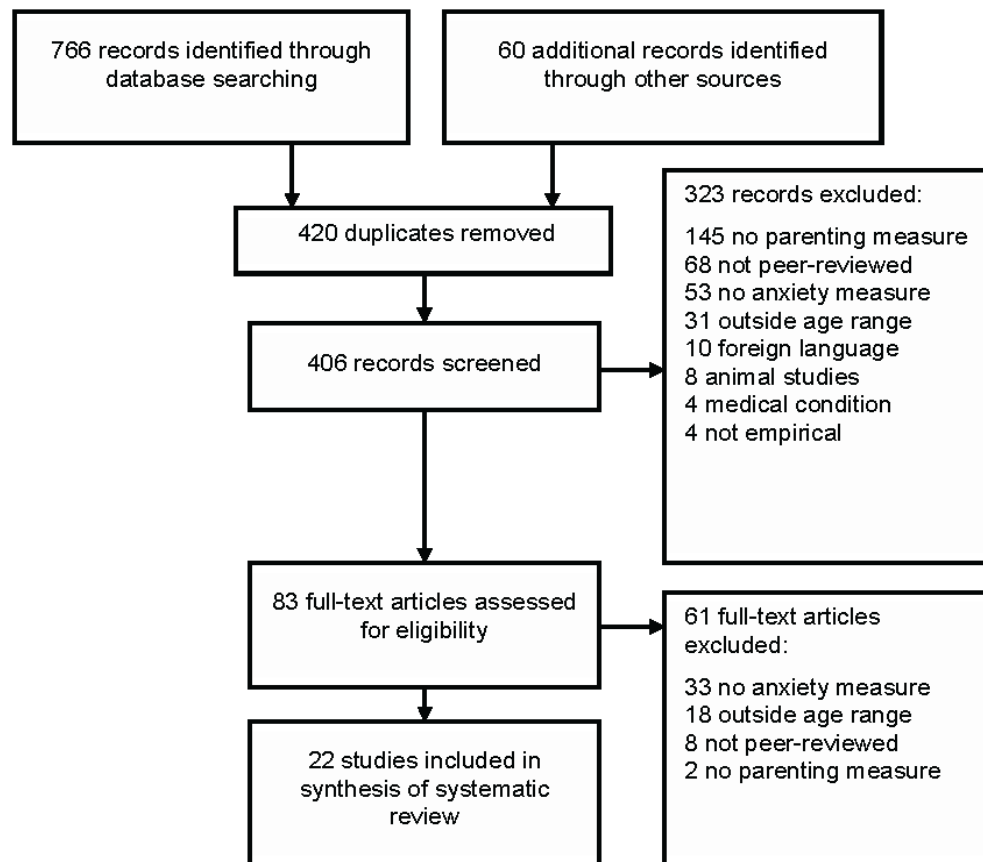


Figure 1: Flow of information through the different phases of the systematic review.

Data Extraction

For each study, the following information was extracted: (a) background and demographic information including study location, setting and design, whether it was part of a larger study, family status, parents' years of education, ethnicity, socio-economic status; (b) number of participants; (c) adolescent age range and mean age; (d) for longitudinal studies, assessment time points; (e) gender of adolescent; (f) gender of parent; (g) parenting behaviour; (h) how the parenting behaviour was measured (i.e. questionnaire, interview or observation); (i) parenting measure used; (j) informant for parenting behaviour (i.e. adolescent, parent, observer); (k) type of adolescent anxiety (i.e. symptoms and/or disorder of social anxiety, generalised anxiety, separation anxiety, specific phobia, panic or agoraphobia or general anxiety symptoms); (l) how adolescent anxiety symptoms and/or disorder were measured (i.e. questionnaire or interview); (m) anxiety measure used; (n) informant for adolescent anxiety (i.e. adolescent, parent, teacher); (o) whether the adolescent had been diagnosed with an anxiety disorder; (p) if an intervention took place; (q) symptoms of co-morbid problems (i.e. low mood, substance abuse/dependence, behaviour problems, neurodevelopmental disorders); (r) how co-morbid symptoms were measured (i.e. questionnaire or interview); (s) informant for adolescent co-morbid symptoms (i.e. adolescent, parent or teacher); (t) parental psychopathology (i.e. anxiety or depression); (u) how parental psychopathology was measured (i.e. questionnaire or interview); (v) method of data analysis; (w) findings; (x) effect sizes and (y) any ethical issues or sources of bias.

Two researchers (PW and LW) extracted the data and as before, discrepancies were resolved by consensus with the third author (CC) after referring to the protocol. Where there was missing data or additional data needed (e.g. age ranges or missing correlation coefficients), authors of studies were contacted. The bibliographic software,

EndNote, was used to import references from electronic databases and record and manage references. Microsoft Access 2010 was used to create a 'library' of references and fields were customised to enable information and decisions to be recorded and this was managed by PW.

Data Synthesis

Due to the heterogeneity of studies in this review (i.e. participants, type of anxiety measured, informants, measures used, study design), the findings of the studies were evaluated through a systematic review rather than a meta-analytic approach, as a meta-analysis could be misleading as biases in individual studies would be compounded and synthesising studies in this way could give credence to poor quality studies (Centre for Reviews and Dissemination, 2008). In addition, effect sizes were examined for each study. Most studies reported effects sizes in terms of Pearson's product-moment correlation coefficient r . Where studies involved group comparisons and did not provide effect sizes, these were then calculated as r . Where studies reported only standardised multiple regression coefficients, rather than correlation coefficients, we contacted authors to obtain the original correlation coefficients. If they were not available, we used Peterson and Brown's (2005) imputation approach to convert β coefficients to corresponding correlation coefficients (r). Once all effect sizes were converted to r , they were then interpreted using Cohen's (1988) definition of an effect size of at least .10 as 'small', at least .24 as 'medium' and at least .37 as 'large'.

Study Sample

The 22 studies identified through literature search were published from 1988 to 2012. Fifteen of the studies were cross-sectional (Caster, Inderbitzen, & Hope, 1999; Fisak & Mann, 2010; Hale III, Engels, & Meeus, 2006; Hernandez-Guzman & Sanchez-Sosa, 1996; Hudson & Rapee, 2001; Kohlmann, Schumacher, & Streit, 1988; McClure, Brennan, Hammen, & Le Brocque, 2001; Muris, 2002; Muris, Meesters, Schouten, & Hoge, 2004; Niditch & Varela, 2012; van Brakel, Muris, Bögels, & Thomassen, 2006; Vazsonyi & Belliston, 2006; Verhoeven, Bögels, & van der Bruggen, 2012; Wilson et al., 2011; Wolfradt, Hempel, & Miles, 2003). Four of these cross-sectional studies (Hale III et al., 2006; Hudson & Rapee, 2001; Vazsonyi & Belliston, 2006; Verhoeven et al., 2012) included data for children and adolescents outside the age range of 11-18 years and so only the analyses involving adolescents within this age range are included. Six studies used a longitudinal design (Loukas, 2009; Miller, Brody, & Murry, 2010; Rapee, 2009; Schwartz et al., 2012; Van Zalk & Kerr, 2011; Wijsbroek, Hale III, Raaijmakers, & Meeus, 2011). Three of these longitudinal studies (Loukas, 2009; Miller et al., 2010; Rapee, 2009) only had one distinct time point where adolescents were aged between 11-18 when adolescent anxiety and perceptions of parenting were assessed and therefore findings were included with the cross-sectional studies. One study in the review was a treatment study (Garcia-Lopez, Muela, Espinosa-Fernandez, & Diaz-Castela, 2009) and none of the studies involved an experimental design.

Six studies were conducted in the Netherlands (Hale III et al., 2006; Muris, 2002; Muris et al., 2004; van Brakel et al., 2006; Verhoeven et al., 2012; Wijsbroek et al., 2011), five studies were conducted in the United States (Caster et al., 1999; Fisak & Mann, 2010; Loukas, 2009; Miller et al., 2010; Niditch & Varela, 2012), four studies were conducted in Australia (Hudson & Rapee, 2001; McClure et al., 2001; Rapee, 2009; Schwartz et al., 2012), two in Germany (Kohlmann et al., 1988; Wolfradt et al., 2003), one in Mexico (Hernandez-Guzman & Sanchez-Sosa, 1996), one in Spain (Garcia-Lopez et al., 2009), one in Sweden (Van Zalk & Kerr, 2011), one in the U.K (Wilson et al., 2011) and one involved participants from four countries (Hungary, the Netherlands, Switzerland and the United States; Vazsonyi & Belliston, 2006). Six studies (Caster et al., 1999; McClure et al., 2001; Miller et al., 2010; Schwartz et al., 2012; Van Zalk & Kerr, 2011; Wijsbroek et al., 2011) were part of larger studies. Participants were recruited through schools in all except four studies (McClure et al., 2001; Miller et al., 2010; Vazsonyi & Belliston, 2006; Wijsbroek et al., 2011), where participants were drawn from the community. One study included a referred, clinical population (Hudson & Rapee, 2001).

Table 1: Reviewed studies, population characteristics, presence of anxiety disorder, informant and method of assessment of parenting and adolescent anxiety symptoms.

Study	Sample Size	Age Range (years)	Anxiety Disorder	Parenting Informant	Parenting Measure	Anxiety Informant	Anxiety Measure
Caster et al. (1999)	1756	Grades 7-11 (11-16)	No	Adol/Par	Qu	Adol	Qu
Fisak and Mann (2010)	348	15-18	No	Adol	Qu	Adol	Qu
Garcia-Lopez et al. (2009)	16	15-18	Yes	Par	Int	Adol	Int
Hale III et al. (2006)	580	12-14	No	Adol	Qu	Adol	Qu
Hernandez-Guzman and Sanchez-Sosa (1996)	3432	15-18	No	Adol	Qu	Adol	Qu
Hudson and Rapee (2001)	75	12-15	Yes	Obs	Obs	Adol/Par	Int
Kohlmann et al. (1988)	329	12-14	No	Adol	Qu	Adol	Qu
Loukas (2009)	479	Grades 7-8 (12-14)	No	Adol	Qu	Adol	Qu
McClure et al. (2001)	816	15	Yes	Adol	Qu	Adol/Par	Int
Miller et al. (2010)	176	12-15	No	Par	Qu	Teacher	Qu
Muris (2002)	220	13-16	No	Adol	Qu	Adol	Qu
Muris et al. (2004)	167	11-14	No	Adol	Qu	Adol	Qu
Niditch and Varela (2012)	124	12-18	No	Adol	Qu	Adol	Qu
Rapee (2009)	421	Grade 8 (11-14)	No	Adol	Qu	Adol/par	Qu
Schwartz et al. (2012)	T1 194 T2 ^a 178	T1 11-13 T2 13-16	No	Obs	Obs	Adol	Qu
Van Brakel et al. (2006)	644	11-15	No	Adol	Qu	Adol	Qu
Van Zalk and Kerr (2011)	T1 916 T2 ^b 785 T3 ^b 703	* T1 Grades 7-9 mean = 14.25, T2 Grades 8-10 mean = 15.06, T3 Grades 9-11 mean = 16.01 (SDs not given)	No	Adol	Qu	Adol	Qu
Vazsonyi and Belliston (2006)	6935	15-16	No	Adol	Qu	Adol	Qu
Verhoeven et al. (2012)	127	13-18	No	Adol/Par	Qu	Adol/Par	Qu
Wijbroek et al. (2011)	T2 1313 T3 ^c	* T2 mean 14.4 (SD .59) (T3 not given)	No	Adol	Qu	Adol	Qu
Wilson et al. (2011)	72	11-16	No	Adol/Par	Qu	Adol	Qu
Wolfardt et al. (2003)	276	14-17	No	Adol	Qu	Adol	Qu

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Note. *T* = Time, ^a *T2* took place approximately two and a half years after *T1*, ^b *T2* and *T3* occurred one and two years after *T1*, ^c *T3* took place two years after *T2* and sample size at *T3* was not provided, * Age range not provided, *Adol* = Adolescent, *Par* = Parent, *Int* = Interview, *Obs* = Observation, *Qu* = Questionnaire.

Adolescents and Anxiety

All but one study (Rapee, 2009) involved adolescents of both sexes. Six studies assessed adolescents for symptoms related to social anxiety or shyness (Caster et al., 1999; Fisak & Mann, 2010; Garcia-Lopez et al., 2009; Loukas, 2009; Miller et al., 2010; Van Zalk & Kerr, 2011), four studies assessed symptoms of generalized anxiety (Hale III et al., 2006; Muris, 2002; Wijsbroek et al., 2011; Wilson et al., 2011) and Wijsbroek et al. (2011) also looked at symptoms of separation anxiety. The remaining twelve studies used measures that assessed general anxiety symptoms.

All but four studies (Hudson & Rapee, 2001; McClure et al., 2001; Rapee, 2009; Verhoeven et al., 2012) relied on a single informant to report on the adolescent's anxiety symptoms; this was the adolescent in all studies except Miller et al. (2010), where their sole informant was a teacher. Hudson and Rapee (2001), McClure et al. (2001), Rapee (2009) and Verhoeven et al. (2012) all assessed adolescent anxiety symptoms through both adolescent and parent report. Three studies assessed adolescent anxiety through a diagnostic interview. Hudson and Rapee (2001) and McClure et al. (2001) carried out separate interviews with adolescents and parents. Hudson and Rapee (2001) used either the Anxiety Disorders Interview Schedule for Children (Silverman & Nelles, 1988) or the Anxiety Disorders Interview Schedule - Child and Parent version (ADIS-C/P; Silverman & Albano, 1996), while McClure et al. (2001) used the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Epidemiologic version (K-SADS-E; Orvaschel & Puig-Antich, 1987). Garcia-Lopez et al. (2009) interviewed the adolescents only, using the ADIS-C. In the remaining 19 studies, adolescents completed self-report questionnaire measures, such as the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997), the State Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970), the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978), the Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998) and the Penn State Worry Questionnaire for Children (PSWQ-C; Chorpita, Tracey, Brown, Collica, & Barlow, 1997). McClure et al. (2001) also measured co-morbid symptoms of depression through diagnostic interview.

Parents and Parenting

Nineteen of the studies involved reports of parenting, or parents themselves, of both sexes, apart from the studies by Hudson and Rapee (2001), Loukas (2009) and Rapee (2009), where the focus was on mothers. Nineteen studies assessed perceptions of parenting through questionnaire measures, such as the Egena Minnen Beträffande Uppfostran: My Memories of Upbringing - Child version (the EMBÜ-C; Castro, Toro, Van der Ende, & Arrindell, 1993) and the Children's Report of Parental Behaviour Inventory (CRPBI; Schludermann & Schludermann, 1988). Both adolescents and parents completed the parenting questionnaires in the studies by Caster et al. (1999), Verhoeven et al. (2012) and Wilson et al. (2011). Sixteen studies relied on the report of a single informant; 15 of the studies relied on adolescent's reports of parenting, whereas Miller et al. (2010) relied on parent's reports of their parenting. In the three remaining studies, Hudson and Rapee (2001) and Schwartz et al. (2012) used an observational measure, in which a parent-child interaction task was videoed and then coded by trained observers and Garcia-Lopez et al. (2009) used a parent interview, the Five Minute Speech Sample (FMSS; Magaña et al., 1986).

Demographic Variables

Twelve studies reported on ethnicity and of these, between 55% and 99% of adolescents were Caucasian (although in the Verhoeven et al. (2012) study, the demographic information was given for the whole sample, rather than just the adolescent group). The majority of the studies did not provide information relating to socio-economic status (SES) or parents' educational background. Where it was reported, three studies (Caster et al., 1999; McClure et al., 2001; Miller et al., 2010) described their participants as low to middle SES, while Rapee (2009) and Wolfradt et al. (2003) described their participants as predominantly middle SES. Verhoeven et al. (2012) reported that 55-61% of parents had completed tertiary education and Miller et al. (2010) reported that this was the case for 75% of parents in their study. Niditch and Varela (2012) reported that in their sample, parents had completed on

average three years of education following high school. Wilson et al (2011) reported that 78% of parents in their study were working.

The majority of the studies did not provide information regarding whether parents were married, co-habiting or single and/or who the adolescent lived with. All the adolescents in Loukas' (2009) study were living with their biological mother. In Miller et al.'s (2010) study, all the parents were married and the biological parents of the adolescent. Verhoeven et al. (2012) reported that 97-98% of participating mothers and fathers across their child and adolescent groups were the biological parent of the child. Van Zalk and Kerr (2011) reported that 68% of families contained both the adolescents' biological parents. Five studies reported that between 81-93.5% of parents were married or co-habiting (McClure et al., 2001; Van Zalk & Kerr, 2011; Verhoeven et al., 2012; Wijsbroek et al., 2011; Wolfradt et al., 2003).

Results

Cross-Sectional Findings

General anxiety symptoms and parenting.

Eleven studies reported cross-sectional associations between general anxiety symptoms and either adolescent perceptions of parenting behaviours (Hernandez-Guzman & Sanchez-Sosa, 1996; Kohlmann et al., 1988; McClure et al., 2001; Muris et al., 2004; Niditch & Varela, 2012; Rapee, 2009; van Brakel et al., 2006; Vazsonyi & Belliston, 2006; Verhoeven et al., 2012; Wolfradt et al., 2003) or observed parenting (Hudson & Rapee, 2001).

Seven of these studies examined cross-sectional relationships between adolescent anxiety and either perceptions or observations of parental control or over-protection (Hudson & Rapee, 2001; McClure et al., 2001; Muris et al., 2004; Niditch & Varela, 2012; van Brakel et al., 2006; Verhoeven et al., 2012; Wolfradt et al., 2003). The study by Hudson and Rapee (2001) involved children and adolescents diagnosed with an anxiety disorder and a non-clinical, community-based comparison group. They observed interactions between mothers and their child or adolescent during two difficult cognitive tasks. In general, mothers of children and adolescents with an anxiety disorder were significantly more involved and intrusive than mothers whose child or adolescent was in the non-clinical group. When the young people were categorised according to age, with a separate category for 12 to 15 year olds, there was not a significant age by group interaction, suggesting that the main effect of group was not modified by the young person's age. Specifically, mothers of adolescents with an anxiety disorder were more controlling than mothers of adolescents in the non-clinical group, and the difference had a medium effect size.

The other six studies examined relationships between adolescent anxiety and their perceptions of, rather than observed, parental control and of these, five studies found significant associations. Effect sizes ranged from small (McClure et al., 2001; Muris et al., 2004; van Brakel et al., 2006; Verhoeven et al., 2012) to medium (Wolfradt et al., 2003). Niditch and Varela (2012) found a small effect for the association between perceptions of parental control and adolescent anxiety for parents of both genders, but the associations did not reach statistical significance. This study had a similar methodology to three of the other studies (Muris et al., 2004; van Brakel et al., 2006; Wolfradt et al., 2003) but a smaller sample and therefore may have not been sufficiently powered to detect a significant difference. While Verhoeven et al. (2012) did find a significant association between perceptions of fathers' over-controlling behaviour and adolescent anxiety symptoms, this was not the case for mothers. The study differed to the other studies in that adolescent anxiety and perceptions of parents were based on the combined reports of parents and adolescents rather than just adolescents, however, when analyses were conducted separately using only adolescent (or parental) reports of parenting, the results did not differ. They also found no significant associations between adolescent anxiety and perceptions of autonomy-granting behaviour for parents of either gender and suggested that autonomy-granting, which is often seen as being at the opposite end of the continuum for the parenting dimension of control, may actually be an entirely separate construct.

Of these studies, only McClure et al. (2001) involved adolescents with a diagnosed anxiety disorder; specifically to investigate the relationship between maternal and adolescent anxiety disorders and in particular, whether perceived parental control was a mediator of this relationship. They found that although adolescent's perceptions of

their mother's psychological control did predict adolescent anxiety disorders, maternal anxiety disorder did not significantly predict adolescent perceptions of maternal psychological control and therefore conditions for establishing mediation were not met. They also examined perceived maternal behavioural (rather than psychological) control, but did not find a significant association with adolescent anxiety disorder status.

In terms of parenting behaviours related to the dimension of rejection or lack of support/warmth, nine cross-sectional studies examined the association with adolescent anxiety. Again, Hudson and Rapee's (2001) study was the only one to examine this relationship through observed, rather than perceived, parenting. They found that mothers of children and adolescents with an anxiety disorder were significantly more negative than mothers whose child or adolescent was in the non-clinical group. As above, when the young people were categorised according to age, with a separate category for 12 to 15 year olds, there was not a significant age by group interaction, suggesting that the main effect of group was not modified by the young person's age. Specifically, mothers of adolescents with an anxiety disorder were more negative than mothers of adolescents in the non-clinical group, and the difference had a medium effect size.

Six of the remaining eight cross-sectional studies (Hernandez-Guzman & Sanchez-Sosa, 1996; Muris et al., 2004; Niditch & Varela, 2012; Vazsonyi & Belliston, 2006; Verhoeven et al., 2012; Wolfradt et al., 2003) found that higher levels of adolescent-rated parental rejection or lack of support/warmth were significantly associated with adolescent anxiety symptoms, with effect sizes in the small to medium range. In addition to the dimension of warmth, Wolfradt et al. (2003) also examined the association between adolescent anxiety and perceived parental pressure and found it to be significant, with a large effect size.

Both Hernandez-Guzman and Sanchez-Sosa (1996) and Vazsonyi and Belliston (2006) found the association between adolescent anxiety and perceptions of parental lack of support or warmth to be significant for both mothers and fathers. Hernandez-Guzman and Sanchez-Sosa (1996) also found a significant association between adolescent anxiety and perceptions of parental rejection for both mothers and fathers. In contrast, Niditch and Varela (2012) and Verhoeven et al. (2012) found differences in associations according to parental gender. Niditch and Varela (2012) found a significant association between adolescent anxiety symptoms and perceptions of mothers' rejecting behaviour, with a medium effect size, but this association was small and non-significant for fathers. They reported, however, that 13 fewer participants in their sample completed the questionnaires for fathers' behaviour and so while this effect was weaker than for mothers, the lack of significance may also reflect a lack of power. Verhoeven et al. (2012), on the other hand, found a significant association between perceptions of rejecting behaviour and adolescent anxiety for fathers only, with a small effect size. These studies are similar in terms of methodology, age of participants and sample size. Although Niditch and Varela (2012) relied exclusively on adolescent report of parenting, when Verhoeven et al. (2012) repeated their analysis using only adolescent reports of parenting their results did not change. The differing findings, therefore, are more likely to be accounted for by the measures of anxiety and parenting used in each study and sample demographics, in that the Niditch and Varela (2012) was carried out in the U.S., rather than the Netherlands, with a much more ethnically diverse sample.

While Niditch and Varela (2012) found that the relationship between perceived maternal rejection and adolescent anxiety was significantly mediated by adolescent emotional self-efficacy, adolescent perceived control was not found to be a significant mediator of this association by Muris et al. (2004). As these studies were very similar in design, this difference in findings may reflect the differing constructs of emotional self-efficacy, which measures the adolescent's beliefs about their competence and ability to cope with negative emotions, and perceived control, which measures the adolescent's beliefs about their ability to exert control in different domains of their life. The difference in findings may also reflect sample characteristics; the mean age of participants in Niditch and Varela's study was higher than those in Muris' study (14.82 years compared to 12.18 years) and participants were from the United States rather than the Netherlands.

Table 2: Cross-sectional associations between adolescent anxiety symptoms by anxiety type and different parenting dimensions.

Study	Anxiety Type	Overprotection / control	Rejection / warmth	Anxious rearing	Modelling of anxiety / lack of sociability	Other
Hernandez-Guzman and Sanchez-Soza (1996)	General	-	Mo: $r = -.17$ -.22*** Warm/Rej \diamond Fa: $r = -.19$ -.26*** Warm/Rej \diamond	-	-	-
Hudson and Rapee (2001)	General	$r = .36^a$	$r = .31^a$	-	-	-
Kohlmann et al. (1988)	General	-	Mo: $r = .04$ -.08 Warm Fa: $r = .07$ -.14 Warm	-	-	Mo: $r = .48$ -.52 ** Incons Fa: $r = .36$ -.48 ** Incons
McClure et al. (2001)	General	$r = .11^*$ \blacklozenge Psy $r = -.02$ \blacklozenge Beh	$r = .07$ \blacklozenge Warm	-	-	-
Muris et al. (2004)	General	$r = .23^*$	$r = .23^*$ Rej	$r = .26^{**}$	-	-
Niditch and Varela (2012)	General	Mo: $r = .16$ Fa: $r = .10$	Mo: $r = .34$ *** Rej Fa: $r = .17$ Rej	-	-	-
Rapee (2009)	General	-	-	$r = .29^{**}$ Adol $r = .11^*$ Par	-	-
van Brakel et al. (2006)	General	$r = .21^{**}$	-	$r = .30^{**}$	-	-
Vazsonyi and Belliston (2006)	General	-	Mo: $r = -.19$ *** \blacklozenge Warm Fa: $r = -.14$ *** \blacklozenge Warm	-	-	-
Verhoeven, Bögels & van der Bruggen (2012)	General	Mo: $r = -.01$ Mo: $r = .03$ Aut Fa: $r = .23^*$ Fa: $r = -.06$ Aut	Mo: $r = .10$ Rej Fa: $r = .19^*$ Rej	-	-	-
Wolfradt et al. (2003)	General	$r = .26$ *** Beh	$r = -.31$ *** Warm	-	-	$r = .41$ *** Press
Hale III et al. (2006)	Generalized	-	$r = .36$ *** \blacklozenge Boys Rej $r = .21$ ** \blacklozenge Girls Rej	-	-	-
Muris (2002)	Generalized	Mo: $r = .30^*$ Fa: $r = .22^*$	Mo: $r = .07$ Warm Mo: $r = .13$ Rej Fa: $r = .03$ Warm Fa: $r = .05$ Rej	Mo: $r = .19$ Boys Mo: $r = .37^*$ Girls Fa: $r = .11$ Boys Fa: $r = .28^*$ Girls	-	-
Wilson et al. (2011)	Generalized	$r = .05$ Adol $r = -.004$ Par	$r = -.05$ Warm Adol $r = .08$ Warm Par $r = -.02$ Rej Adol $r = -.06$ Rej Par	$r = -.05$	-	-

Study	Anxiety Type	Overprotection / control	Rejection / warmth	Anxious rearing	Modelling of anxiety / lack of sociability	Other
Caster et al. (1999)	Social	-	-	-	Mo: $r = .21^{***}$ Fa: $r = .20^{***}$	Mo: $r = .19-.21^{***}$ Comm Fa: $r = .18-20^{***}$ Comm
Fisak and Mann (2010)	Social	-	-	-	$r = .19^{***}$ Model $r = .04$ Sociab	$r = .23^{***}$ Comm
Loukas (2009)	Social	$r = .10$ Boys $r = .02$ Girls	-	-	-	-
Miller et al. (2010)	Social	-	Mo: $r = .09$ Warm Fa: $r = -.14$ Warm	-	-	-

Note. – indicates that this parenting dimension was not measured, *Mo* = mothers, *Fa* = fathers, *Adol* = adolescent report, *Par* = parent reported, *Warm* = warmth/support, *Rej* = rejection, *Aut* = Autonomy granting, *Beh* = behavioural control; *Psy* = psychological control; *Comm* = communication of shame and criticism of adolescent's social interactions and skills, *Incons* = inconsistency of parental feedback, *Press* = parental pressure, *Model* = Parental modelling of social fears, discomfort and avoidance, *Sociab* = Parental sociability and tendency to engage in social situations outside the family, $\diamond = r$ imputed from β coefficients using Peterson and Brown's (2005) imputation approach, ^a = statistical difference between means for adolescent sample not provided, \diamond = items of rejection were reverse scored so that a higher score on this dimension indicates higher levels of warmth and lower levels of rejection, * $p < .05$, ** $p < .01$, *** $p < .001$.

Two studies did not find a significant relationship between adolescent anxiety and adolescent perception of a lack of parental support or acceptance (Kohlmann et al., 1988; McClure et al., 2001). Kohlmann et al. (1988) also examined adolescent perceptions of parental inconsistency, i.e. in the way they deal with the same adolescent behaviour on different occasions, and found a significant relationship between adolescent anxiety and perceptions of both mothers and father's inconsistent parenting, with large effect sizes. While McClure et al (2001) did not find a significant association between adolescent perceptions of maternal acceptance and adolescent anxiety disorder, they did find a relationship between adolescents' perceptions of maternal acceptance (and psychological control) and adolescent symptoms of co-morbid depression on the Beck Depression Inventory.

Three studies examined the relationship between adolescent anxiety and perceptions of anxious rearing (Muris et al., 2004; Rapee, 2009; van Brakel et al., 2006) and all found higher levels of adolescent anxiety symptoms were significantly associated with higher adolescent perceived parental anxious rearing behaviour, with medium effect sizes. Rapee (2009) found this association was also significant when parents rated their adolescent's anxiety symptoms, but with a small, rather than medium, effect size. Van Brakel et al. (2006) looked at adolescent gender and found that neither the results for boys nor girls differed significantly from the results obtained for the total group. In addition, Muris et al. (2004) examined whether the relationship between adolescent anxiety symptoms and their perception of parental anxious rearing behaviours was mediated by perceived control but found this was not the case.

Generalized anxiety symptoms and parenting.

Both Muris (2002) and Wilson et al. (2011) assessed symptoms associated with generalized anxiety in adolescents using the Penn State Worry Questionnaire (Chorpita et al., 1997; Meyer, Miller, Metzger, & Borkovec, 1990) and adolescents' perceptions of parenting using the EMBU-C (Castro et al., 1993). While Muris (2002) found adolescent's perceptions of both their mothers' and fathers' over-protection correlated significantly with adolescent worry, with small to medium effect sizes, this was not found by Wilson et al. (2011), using either adolescent or parent reports of parenting. While mean levels of adolescents' ratings of parental overprotection in the two studies were very similar, the mean age of the adolescents were a little higher in Muris' study and this may account for the difference in findings.

Neither Muris (2002) nor Wilson et al. (2011) found a significant association between adolescent worry and perceptions of parental rejection or lack of warmth. Hale III et al. (2006), in contrast, did find significant associations between perceptions of parental rejection and adolescents generalized anxiety symptoms for both boys and girls. This study is similar in methodology to the other two studies, in that adolescents completed self-report measures of anxiety and parenting in a school environment but differed in terms of the study location and measures used to assess symptoms of generalized anxiety and perceptions of parenting and these differences may account for the conflicting findings.

Muris (2002) and Wilson et al. (2011) also examined perceptions of parental anxious rearing; Muris (2002) found an association with adolescent worry and perceptions of parental anxious rearing based on girls', but not boys', reports, with medium to large effect sizes. Wilson et al. (2011) did not find a significant association between adolescent worry and perceptions of anxious rearing and did not find any significant differences between male and female adolescents on any variable. Notably, Wilson et al. (2011) also found that there was little concordance between adolescent-reported and parent-reported parenting dimensions.

Social anxiety symptoms and parenting.

Three studies (Caster et al., 1999; Fisak & Mann, 2010; Loukas, 2009) examined the relationship between adolescent symptoms of social anxiety on the Social Anxiety Scale for Adolescents (SAS-A) (La Greca & Lopez, 1998) and perceptions of parenting in adolescents from community populations. Loukas (2009) did not find a significant association between social anxiety symptoms and perceptions of maternal psychological control, whereas the two other studies (Caster et al., 1999; Fisak & Mann, 2010), that compared adolescents with higher levels of social anxiety symptoms to those with lower levels of symptoms, found significant differences between

groups on adolescents' perceptions of parenting attitudes and behaviour. Both studies found that adolescents with higher levels of social anxiety perceived their parents to be significantly more ashamed of their social interactions and social skills and more concerned about other people's opinions, with small effect sizes. Fisak and Mann (2010) also found adolescents with higher levels of anxiety reported that their parents were significantly more likely to model social fears, social discomfort and avoidance. The more socially anxious adolescents in Caster et al.'s (1999) study were more likely to report that their parents were less socially active, however this was not found by Fisak and Mann (2010). Differences between findings in the two studies may reflect differences in self-report measures used to assess parental sociability, that the adolescents in Caster et al.'s (1999) study were younger than those in the study by Fisak and Mann (2010), or differences in the way the two groups in each study were stratified. Specifically, in the Caster et al. (1999) study, the 'high social anxiety' group was comprised of adolescents who had scored at least one standard deviation above their specific gender and grade mean on either a subscale or total score on the SAS-A and the 'low social anxiety' group scored at or below their specific gender and grade mean on all SAS-A subscales and total score, whereas Fisak and Mann (2010) split their sample into two groups, with those scoring 50 or above on the SAS-A in the 'high anxiety' group and those scoring less than 50 in the 'low anxiety' group. Finally, Caster et al. (1999) compared parent's perceptions of their parenting behaviour for high and low socially anxious adolescents and, in contrast to the reports of the adolescents themselves, found no significant differences on the basis of parents' reports.

A further study (Miller et al., 2010) did not find significant associations between adolescent shyness, as rated by teachers, with parents' positive problem-solving, based on parent's report of the extent to which they were warm and responsive in discussing and solving their adolescent's problems with their adolescent.

Longitudinal Findings

General anxiety symptoms and parenting.

Schwartz et al. (2012) used two parent-adolescent interaction tasks to observe and assess family interactions relating to the dimension of parental rejection. Parental responses during a problem-solving task, designed to elicit negative behaviour, were not significantly associated with adolescent anxiety approximately two and a half years later. On an event-planning task designed to elicit positive behaviour, however, higher levels of parental aggressive behaviour predicted higher levels of anxiety symptoms in adolescents two and a half years later in both boys and girls with a medium effect size after controlling for baseline symptoms.

Generalized and separation anxiety symptoms and parenting.

Wijsbroek et al. (2011) examined the direction of effects between adolescents' perceptions of parental behavioural and psychological control and their self-reported symptoms of generalized anxiety and separation anxiety. The study involved collecting data for two groups of adolescents at three time-points, but for the purposes of this review only the comparisons for the early adolescent group across the second and third time points will be reported as the age of these adolescents fell within the age range of 11-18 years. They found that higher levels of perceived parental control were significantly associated with a greater increase in adolescent generalized and separation anxiety symptoms over time, with small effect sizes. These associations were significant for both perceived psychological and behavioural control, but psychological control showed marginally stronger effects. Prospective associations between earlier adolescent anxiety and increases in perceived parental control over time were less consistent. Higher levels of adolescent generalized anxiety symptoms were significantly associated with a greater increase in perceptions of parental psychological control for both genders with medium effect sizes, and behavioural control for girls with small effect sizes. However, higher levels of adolescent separation anxiety symptoms were only significantly associated with a greater increase in perceptions of parental psychological control for boys, with medium effect sizes. Thus, associations between prior adolescent anxiety and later perceived parental control were stronger when generalized anxiety symptoms were considered compared to separation anxiety symptoms and, as was found for the reciprocal relationship, effects appeared to be stronger for perceived psychological rather than behavioural control.

Table 3: Longitudinal associations between adolescent anxiety symptoms by anxiety type and parenting dimensions of control and rejection/warmth.

Study	Anxiety Type	Control ↓ Anxiety	Rejection/Warmth ↓ Anxiety	Anxiety ↓ Control	Anxiety ↓ Rejection / Warmth
Schwartz et al. (2012)	General	-	$r = .10$ Rej PS $r = .24^{**}$ Rej EP	-	-
Wijsbroek et al. (2011)	Generalized	$r = .18^{**\diamond}$ Beh Boys $r = .15^{*\diamond}$ Beh Girls $r = .17^{**\diamond}$ Psy Boys $r = .16^{**\diamond}$ Psy Girls	-	$r = .11^{*\diamond}$ Beh Boys $r = .16^{*\diamond}$ Beh Girls $r = .30^{**\diamond}$ Psy Boys $r = .28^{**\diamond}$ Psy Girls	-
	Separation	$r = .16^{*\diamond}$ Beh Boys $r = .14^{*\diamond}$ Beh Girls $r = .17^{**\diamond}$ Psy Boys $r = .20^{**\diamond}$ Psy Girls		$r = .11^{*\diamond}$ Beh Boys $r = -.01^{*\diamond}$ Beh Girls $r = .25^{**\diamond}$ Psy Boys $r = .14^{*\diamond}$ Psy Girls	
Van Zalk and Kerr (2011)	Social	$r = ns$ T2 $r = .14^{*\diamond}$ T3	$r = ns$ Warm T2 $r = ns$ Warm T3 $r = ns$ Rej T2 $r = ns$ Rej T3	$r = .12^{*\diamond}$ T2 $r = ns$ T3	$r = -.09^{**\diamond}$ Warm T2 $r = -.06^{*\diamond}$ Warm T3 $r = .21^{***\diamond}$ Rej T2 $r = ns$ Rej T3

Note. ↓ indicates that the study measured the association between the first term at an earlier time point and the second term at a later time point, – indicates that this parenting dimension was not measured, *Warm* = warmth/support, *Rej* = rejection, *Beh* = behavioural control, *Psy* = psychological control, *PS* = problem-solving interaction task, *EP* = event planning task, *T2* = time point 2, *T3* = time point 3, \diamond = r imputed from β coefficients using Peterson and Brown's (2005) imputation approach, *ns* = not significant and statistic not provided, * $p < .05$, ** $p < .01$, *** $p < .001$.

Social anxiety symptoms and parenting.

Van Zalk and Kerr (2011) examined adolescent shyness and symptoms of social anxiety in relation to parenting and found that adolescent self-rated shyness predicted an increase in perceptions of higher levels of parental control, rejection and decreased warmth a year later, with small effect sizes. They also found that perceptions of parental control predicted adolescent shyness at a third time point, a year later, however, parental rejection and lack of warmth did not predict changes in adolescent anxiety at a second or third time point.

Treatment Study

Garcia-Lopez et al. (2009) examined differences in social anxiety symptoms for adolescents following cognitive behavioural treatment for social anxiety disorder on the basis of whether parents were classified as a showing 'high' or 'low' levels of expressed emotion (EE). Levels of parental expressed emotion were assessed using the Five Minute Speech Sample (FMSS) (Magaña et al., 1986); parents who expressed one or more comments coded as reflecting criticism, hostility or emotional involvement were defined as 'high' EE ($n = 6$), whereas others were defined as 'low' EE ($n = 10$). They found no significant differences between the two groups on change in social anxiety symptoms ($p = .19$). For both groups, the difference in social anxiety symptoms between pre-treatment scores and scores at post-treatment and follow-up was large (low EE group, $r = .67-.69$; high EE group, $r = .53-.54$).

Discussion

The aim of this systematic review was to examine the evidence for an association between parenting behaviours and anxiety in adolescence. The results of the review reveal the existing literature to be a heterogeneous group of studies, largely involving adolescents from community samples and using cross-sectional designs, where adolescents completed self-report questionnaires to measure their symptoms of anxiety and, in most cases, their perceptions of their parent's behaviour.

The Relationship between Adolescent Anxiety and Perceived/Observed Parenting Behaviours

The majority of studies in the review (75%) found significant associations between adolescent anxiety and either observed, or perceptions of, parental control or over-protection, with effect sizes in the small to medium range. The results of the two studies (Van Zalk & Kerr, 2011; Wijsbroek et al., 2011) that examined prospective relationships between adolescent anxiety and perceptions of parental control provided support for bi-directional effects although interestingly, effect sizes were somewhat stronger (with small to medium effects) for adolescent symptoms of anxiety predicting later higher levels of perceived parental control than for perceptions of control predicting later adolescent anxiety. These findings emphasise the need for caution before interpreting significant cross-sectional associations as evidence for a developmental influence of controlling parenting on adolescent anxiety.

The findings relating to the association between adolescent anxiety and perceptions of parental lack of warmth/support or rejecting behaviour were more mixed. 66% of studies examining this parenting dimension found significant associations, with small to medium effect sizes. Of the two studies involving adolescents with a diagnosed anxiety disorder, Hudson and Rapee found higher levels of observed negativity in mothers of anxious adolescents, compared to a non-clinical control group, with a medium effect size, while McClure et al. (2001) failed to find a significant association between adolescent anxiety disorder status and adolescent perceptions of rejecting parental behaviour. Furthermore, contrary to models of the development of anxiety, Van Zalk and Kerr (2011) found the evidence was greater for adolescent social anxiety symptoms predicting later perceptions of parental rejection and lack of warmth than parenting predicting changes in adolescent anxiety. In contrast however, Schwartz et al.'s (2012) study did find an association in this direction, but did find that observed parental rejecting behaviour predicted adolescent anxiety two and a half years later, with a medium effect size. The difference between findings in the two studies is likely to reflect the difference in methodology used, in that Schwartz et al. (2012) study involved observing interactions between parents and their adolescents during a task, while the study by Van Zalk and Kerr (2011) involved adolescent's ratings of parental behaviour (see below for further discussion on the validity of questionnaire measures of parenting). The lack of consistent findings may also reflect differences in anxiety symptoms and measurement; Schwartz et al. (2012) measured general anxiety symptoms using the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988) whereas van Van Zalk and Kerr (2011) specifically measured social anxiety symptoms. As such, the discrepant findings may suggest that associations between parenting behaviours and anxiety symptoms are disorder subtype specific. This suggestion warrants further examination.

The majority of cross-sectional studies (80%) also provided support for an association between adolescent anxiety symptoms and perceptions of anxious rearing behaviour, with most studies finding medium effect sizes. Unfortunately there were no longitudinal studies that examined this parenting dimension in order to clarify the direction of effects and because this is a broad concept, which refers to young people's perceptions of their parents' thoughts and behaviours, it is unclear what this scale is measuring exactly. As is discussed further below, investigation of the validity of these parenting scales is required.

Methodological Issues

The majority of the studies that were reviewed were cross-sectional and therefore interpreting the results is problematic as the direction of effects cannot be established. As outlined earlier, it may be that parental controlling or rejecting behaviour influences the development and maintenance of adolescent anxiety symptoms, by preventing the adolescent from developing their sense of self-efficacy and undermining their emotion regulation and so increasing their sensitivity to anxiety (e.g. Chorpita & Barlow, 1998; McLeod et al., 2007). The results of Van Zalk and Kerr (2011) and Schwartz et al. (2012) provide some preliminary support for this hypothesis. Notably, Schwartz et al. (2012) found a significant prospective association between observed (rather than reported) parental rejecting behaviour and change in adolescent anxiety over time, with a medium effect size. It may be, however, that adolescent symptoms of anxiety lead to changes in parental behaviour as the parent attempts to manage their adolescent's anxiety or reacts in a negative way as a result of the stress caused by the adolescent's anxiety. Again, prospective studies (Van Zalk & Kerr, 2011; Wijsbroek et al., 2011) provide some preliminary support for this

hypothesis in relation to adolescent perceptions of both parental control and rejection. It may also be that another variable, such as adolescent (and/or parental) anxiety, explains the association between perceived parenting and adolescent anxiety. The majority of studies rely on adolescents' report of their parent's behaviour and it is therefore possible that adolescents with higher levels of anxious symptoms may recall, attend to and interpret information negatively (Hadwin, Garner, & Perez-Olivas, 2006); in other words, adolescent's responses on measures of parenting may be more of a reflection of their own anxious cognitions than how their parents are behaving. More generally, a reliance on adolescent reports of parental behaviour is problematic as parenting questionnaires have received little evaluation of their validity and the association between perceived and observed parenting tends to be weak (e.g. Dishion, Li, Spracklen, Brown, & Haas, 1998). Only three studies (Caster et al., 1999; Verhoeven et al., 2012; Wilson et al., 2011) administered parenting questionnaires to both adolescents and parents. Caster et al. (1999) found moderate but consistent associations between adolescent and parent reports of family environment on a modified version of the Parent Attitudes Toward Child-Rearing Scale (Bruch, 1989). Verhoeven et al. (2012) found low to moderate agreement between their broader sample of children and adolescents and parents on the Rearing Behaviour Questionnaire (RBQ: Bögels & Van Melick, 2004) and items from Child Report of Parental Behaviour Inventory (CRPBI: Schaefer, 1965), although using child/adolescent-only report, parent-only report or a combination of the two did not change their findings. Wilson et al. (2011), however, found that there was little concordance between adolescent-reported and parent-reported parenting dimensions on the EMBÜ-C (Castro et al., 1993). Parents may also be unreliable reporters of their own parenting behaviour parents, however, as they may be inclined to portray themselves in a positive light (Schwarz, Barton-Henry, & Pruzinsky, 1985). At a more general level, using single informants to report on parenting and anxiety symptoms is problematic as associations may be due to shared methods variance and not due to a true relationship between the constructs (Barker, Pistrang, & Elliott, 1994).

The Findings of the Review In Relation To the Broader Literature

The pattern of results from the review is broadly consistent with the results of reviews of parenting and anxiety in children that have included broad age ranges (e.g. McLeod et al., 2007; van der Bruggen et al., 2008) and suggests that the association between child anxiety and perceived parental control applies in adolescence. Both McLeod et al. and van der Bruggen et al. found medium sized associations between parental control and child anxiety when studies including broader age ranges were included, whereas this review found effect sizes in the small to medium range. This may reflect parental behaviours having less influence on the young person's symptoms of anxiety as children move in to adolescence, or that parents may adapt their behaviour to be less controlling as their offspring get older. Alternatively the more modest findings may reflect methodological differences between the studies in the different reviews. McLeod et al. (2007) found stronger effects for studies involving participants with a diagnosed anxiety disorder, using observers to report upon parenting and for studies with higher quality measurement of parenting practices. Notably this review included only three studies which included adolescents with an anxiety disorder diagnosis and only two studies involved observational methods. These study characteristics may account for the smaller effect sizes found across this review.

This review demonstrated mixed support for associations between adolescent anxious symptoms and perceptions of rejection or a lack of warmth and observed parental rejection; where there were significant associations, effect sizes were in the small to medium range. McLeod et al.'s (2007) meta-analysis of studies, including children and adolescents, found rejection and a lack of warmth to be less strongly associated with child anxiety than parental control and an overall small effect size. It is too early to know whether the small to medium effects sizes found in this review represents higher levels of rejection and a lack of warmth in parents of adolescents with anxiety. If this were the case, however, it may reflect higher levels of conflict between adolescents and their parents during this period as the family negotiates issues of control and autonomy (Paikoff & Brooks-Gunn, 1991; Steinberg, 1990) and/or higher levels of co-morbid mood disorders in adolescents with anxiety, compared to children (e.g. Kendall et al 2010).

Strengths of the Review

One of the strengths of this review is the exclusive focus on the adolescent developmental period. Given that adolescence is a distinct, critical, transitional period between childhood and adulthood and a time of huge biological, psychological and social change (Erikson, 1968; Feldman & Elliott, 1990; Holmbeck et al., 2000), then it is important to be able to determine whether anxiety during this developmental stage is associated with particular parenting behaviours that may or may not be seen earlier on in childhood. The restricted age range does mean, however, that some studies were excluded as they included some participants who were outside the stated age range (e.g. Anli & Karsli, 2010; Pedersen, 1994), or in the case of longitudinal studies, there was not a distinct time point where adolescent anxiety and perceptions of parenting were measured when all adolescents were within this age range (e.g. Knappe, Beesdo-Baum, Fehm, Lieb, & Wittchen, 2012; Lieb et al., 2000). Notably, the studies by Knappe et al. (2012) and Lieb et al. (2000) involved adolescents with diagnosed anxiety disorders and found that adolescent perceptions of parental overprotection and rejection were significantly associated with anxiety diagnosis status, which is broadly consistent with the findings of this review. Even after restricting studies to within the adolescent age period, it is likely that there are differences between adolescents in early, middle and late adolescence and the nature of the association with anxiety will be determined by additional factors other than age, such as pubertal status, emotional maturity, peer factors, the educational setting and social context.

An additional strength of this study is the specific focus on adolescent symptoms of anxiety, rather than internalizing symptoms, which include symptoms of anxiety and depression more generally. Consequently, a large number of studies identified through the literature searches were excluded because they measured symptoms of internalizing disorders and did not conduct analyses of anxiety and depression separately (e.g. Brenning, Soenens, Braet, & Bal, 2012; Frye & Garber, 2005; Ha, Overbeek, Vermulst, & Engels, 2009). Their exclusion is warranted in order to be clear that any significant associations cannot be accounted for the presence of depressive symptoms alone. Nevertheless, many adolescents with anxiety disorders will also experience co-morbid depression; for example, Last, Perrin, Hersen and Kazdin (1992) found high rates of lifetime mood disorders among children and adolescents referred for anxiety disorders. Children and adolescents with obsessive compulsive disorder had the lowest rates of lifetime mood disorders (25%), while those with social phobia had the highest rates (56%). Lifetime mood disorders are likely to be higher than current mood disorders, suggesting that it is valid to study anxiety independently of depression, but as the evidence base increases, it will be important to investigate the relative contribution of mood disorders, especially in relation to specific anxiety disorders, such as social phobia.

Limitations of the Review

As already outlined, there are a number of methodological factors that mean that the results of this review should be interpreted with caution. A further limitation is the categorisation of various parenting behaviours within the two broad constructs of control or rejection. In categorising in this way, this review has followed convention and this allows the general pattern of results to be considered, however, items in self-report measures may not always clearly fit into one parenting dimension or may reflect elements of more than one dimension. For example, the construct of anxious rearing typically includes parenting dimensions of over-protection and parental expressions of anxiety (e.g. Rapee, 2009). Wolfradt et al. (2003) examined the construct of psychological pressure which would generally be considered to be a sub-dimension of 'control' but the behavioural characteristics may be more consistent with the dimension of rejection/criticism (e.g. items include 'Mother/Father become quickly furious when I do not do what she/he wants'). As part of their study, Verhoeven et al. (2012) carried out a confirmatory factor analysis and found only moderate correlations between the factors of parental control and autonomy-granting which are commonly conceptualised as the opposite ends of the same construct and that, for perceptions of paternal parenting at least, they were differentially related to adolescent levels of anxiety. Typically the dimension of rejection encompasses critical, aversive or withdrawn behaviour as well as a lack of support, warmth or acceptance but these positive and negative dimensions reflect quite different constructs and it does not necessarily follow that a parent who is unsupportive is also critical towards their child. McLeod et al.'s (2007) meta-analysis showed different effects for subcategories of parenting behaviours within the same dimension, suggesting that dimensions may need to be broken down into more specific components of parenting behaviour as the available evidence base increases.

Of the 22 studies in this review, only three studies included adolescents with an anxiety disorder (Garcia-Lopez et al., 2009; Hudson & Rapee, 2001; McClure et al., 2001) and only the adolescents in Hudson and Rapee's (2001) study were from a referred population. It is unclear whether the findings from studies of non-clinical samples can be generalised to clinical populations or whether adolescents with anxiety disorders are a distinct group with quite different characteristics to adolescents who do not meet criteria for a diagnosis. In addition, as mentioned earlier, there is some evidence that the presence of an anxiety diagnosis moderates the association between childhood anxiety and parenting (McLeod et al., 2007) and that there are significantly higher effect sizes in clinically anxious groups than those without a diagnosis. In addition, none of the studies reviewed examined perceptions of parenting in relation to symptoms of obsessive compulsive disorder, panic/agoraphobia or specific phobia. Although the results of the studies in the review appeared to be fairly consistent across symptoms of different anxiety subtypes, we remain unclear as to the extent to which they are generalizable to these anxiety symptoms.

Conclusion and Future Directions

The results of this systematic review provide preliminary evidence for an association between anxiety and perceived parental control and anxious rearing in adolescence and although the findings for an association between adolescent anxiety and perceived parental rejection and lack of warmth are more mixed, there is some evidence for an association with observed, rather than adolescent reported, parental rejection. Methodological shortcomings in the studies mean that these results should be interpreted with caution. It is of great importance, therefore, that systematic observational and experimental research is conducted that includes adolescents from referred, clinical populations, involving multiple informants and observational methods to assess parenting, to help identify the critical parental processes and clarify the direction of effects.

Recently, treatment studies have begun to focus on adolescents specifically and have involved parents in treatment (e.g. Spence et al., 2011; Wuthrich et al., 2012), however, the contribution of parental involvement to treatment outcome has not been evaluated. Only one small study (Garcia-Lopez et al., 2009) has examined parental factors in relation to treatment. In this study, no significant associations between parental narratives about their child and treatment outcome were found, however the range of coded responses was limited and as such the study was likely to lack sensitivity to detect significant associations. Consequently, it will be important for future research to establish, first, whether identified parental processes are associated with poorer treatment outcome and, second, whether systematically targeting those parental behaviours through treatment is associated with a better outcome for highly anxious adolescents.

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References

- Anli, I., & Karsli, T. A. (2010). Perceived parenting style, depression and anxiety levels in a Turkish late-adolescent population. *Procedia Social and Behavioral Sciences*, 2, 724-727.
<http://dx.doi.org/10.1016/j.sbspro.2010.03.091>
- Barker, C., Pistrang, N., & Elliott, R. (1994). *Research methods in clinical and counselling psychology*. Chichester: Wiley.
- Barrett, P. M., Rapee, R. M., Dadds, M. M., & Ryan, S. M. (1996). Family enhancement of cognitive style in anxious and aggressive children. *Journal of Abnormal Child Psychology*, 24(2), 187-203.
<http://dx.doi.org/10.1007/BF01441484>
- Barrett, P. M., Rapee, R. M., & Dadds, M. R. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology*, 64, 333-342. <http://dx.doi.org/10.1037/0022-006X.64.2.333>

- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*(6), 893-897. <http://dx.doi.org/10.1037/0022-006X.56.6.893>
- Birmaher, B., Khetarpal, S., Brent, D., Cully, M., Balach, L., Kaufman, J., & McKenzie-Neer, S. (1997). The screen for child anxiety related emotional disorders: scale construction and psychometric characteristics. *Journal of the American Academy of Child & Adolescent Psychiatry, 36*, 533-545. <http://dx.doi.org/10.1097/00004583-199704000-00018>
- Bodden, D., Bögels, S., Nauta, M., de Hann, E., Ringrose, J., Appelboom, C., & Brinkman, K. (2008). Child versus family cognitive behavioural therapy in clinically anxious youth: An efficacy and partial effectiveness study. *Journal of Clinical Child & Adolescent Psychology, 47*(12), 1384-1394. <http://dx.doi.org/10.1097/CHI.0b013e318189148e>
- Bögels, S. M., & Van Melick, M. (2004). The relationship between child-report, parent self-report, and partner report of perceived parental rearing behaviors and anxiety in children and parents. *Personality and Individual Differences, 37*, 1583-1596. <http://dx.doi.org/10.1016/j.paid.2004.02.014>
- Brenning, K., Soenens, B., Braet, C., & Bal, S. (2012). The Role of Parenting and Mother-Adolescent Attachment in the Intergenerational Similarity of Internalizing Symptoms. *Journal of Youth and Adolescence, 41*(6), 802-816. <http://dx.doi.org/10.1007/s10964-011-9740-9>
- Bruch, M. A. (1989). Familial and developmental antecedents of social phobia: Issues and findings. *Clinical Psychology Review, 9*, 37-47. [http://dx.doi.org/10.1016/0272-7358\(89\)90045-7](http://dx.doi.org/10.1016/0272-7358(89)90045-7)
- Caster, B., Inderbitzen, M., & Hope, D. (1999). Relationship between youth and parent perceptions of family environment and social anxiety. *Journal of Anxiety Disorders, 13*(3), 237-251. [http://dx.doi.org/10.1016/S0887-6185\(99\)00002-X](http://dx.doi.org/10.1016/S0887-6185(99)00002-X)
- Castro, J., Toro, J., Van der Ende, J., & Arrindell, W. (1993). Exploring the Feasibility of Assessing Perceived Parental Rearing Styles in Spanish Children With The EMBÜ. *International Journal of Social Psychiatry, 39*(1), 47-57. <http://dx.doi.org/10.1177/002076409303900105>
- Centre for Reviews and Dissemination. (2008). Systematic Reviews: CRD's guidance for undertaking reviews in health care: University of York.
- Chorpita, B. F., & Barlow, D. (1998). The development of anxiety: The role of control in early environment. *Psychology Bulletin, 124*, 3-21. <http://dx.doi.org/10.1037/0033-2909.124.1.3>
- Chorpita, B. F., Tracey, S. A., Brown, T. A., Collica, T. J., & Barlow, D. H. (1997). Assessment of worry in children and adolescents: An adaptation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy, 35*(6), 569-581. [http://dx.doi.org/10.1016/S0005-7967\(96\)00116-7](http://dx.doi.org/10.1016/S0005-7967(96)00116-7)
- Cobham, V. E., Dadds, M. R., & Spence, S. H. (1998). The role of parental anxiety in the treatment of childhood anxiety. *Journal of Consulting and Clinical Psychology, 66*(6), 893-905. <http://dx.doi.org/10.1037/0022-006X.66.6.893>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York: Lawrence Erlbaum Associates.
- Costello, E. J., Copeland, W., & Angold, A. (2011). Trends in psychopathology across the adolescent years: What changes when children become adolescents, and when adolescents become adults? *Journal of Child Psychology and Psychiatry, 52*(10), 1015-1025. <http://dx.doi.org/10.1111/j.1469-7610.2011.02446.x>
- Costello, E. J., Egger, H., & Angold, A. (2005). 10-Year Research Update Review: The Epidemiology of Child and Adolescent Psychiatric Disorders: I. Methods and Public Health Burden. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(10), 972-986. <http://dx.doi.org/10.1097/01.chi.0000172552.41596.6f>
- Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives of General Psychiatry, 60*(8), 837-844. <http://dx.doi.org/10.1001/archpsyc.60.8.837>
- Creswell, C., Murray, L., Stacey, J., & Cooper, P. (2011). Parenting and child anxiety. In W. K. Silverman & A. P. Field (Eds.), *Anxiety Disorders in Children and Adolescents* (2nd ed., pp. 299-322). Cambridge: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511994920.015>
- De Rosnay, M., Cooper, P. J., Tsigaras, N., & Murray, L. (2006). Transmission of social anxiety from mother to infant: an experimental study using a social referencing paradigm. *Behaviour Research and Therapy, 44*, 1165-1175. <http://dx.doi.org/10.1016/j.brat.2005.09.003>

- de Wilde, A., & Rapee, R. M. (2008). Do controlling maternal behaviours increase state anxiety in children's responses to a social threat? A pilot study. *Journal of Behavior Therapy and Experimental Psychiatry*, 39(4), 526-537. <http://dx.doi.org/10.1016/j.jbtep.2007.10.011>
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11(4), 227-268. http://dx.doi.org/10.1207/S15327965PLI1104_01
- Dishion, T. J., Li, F., Spracklen, K., Brown, G., & Haas, E. (1998). Measurement of parenting practices in research on adolescent problem behavior: A multimethod and multitrait analysis. *Drug abuse prevention through family interventions*, 260-293.
- Erikson, E. H. (1968). *Identity: Youth and Crisis*. New York: Norton.
- Feldman, S. S., & Elliott, G. R. (Eds.). (1990). *At the threshold: The developing adolescent*. Cambridge, MA.: Harvard University Press.
- Fisak, B., Jr., & Mann, A. (2010). The relation between parent rearing practices and adolescent social anxiety: A factor analytic approach. *International Journal of Adolescence and Youth*, 15(4), 303-318. <http://dx.doi.org/10.1080/02673843.2010.9748037>
- Ford, T., Goodman, R., & Meltzer, H. (2003). The British child and adolescent mental health survey 1999: The prevalence of DSM-IV disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42(10), 1203-1211. doi: 10.1097/01.chi.0000081820.25107.ae
- Frye, A., & Garber, J. (2005). The Relations Among Maternal Depression, Maternal Criticism, and Adolescents' Externalizing and Internalizing Symptoms. *Journal of Abnormal Child Psychology*, 33(1), 1-11. <http://dx.doi.org/10.1007/s10802-005-0929-9>
- Furman, W., & Buhrmester, D. (1992). Age and Sex Differences in Perceptions of Networks of Personal Relationships. *Child Development*, 63(1), 103-115. <http://dx.doi.org/10.2307/1130905>
- Garcia-Lopez, L. J., Muela, J. M., Espinosa-Fernandez, L., & Diaz-Castela, M. (2009). Exploring the relevance of expressed emotion to the treatment of social anxiety disorder in adolescence. *Journal of Adolescence*, 32(6), 1371-1376. <http://dx.doi.org/10.1016/j.adolescence.2009.08.001>
- Garnezy, N. E., & Rutter, M. E. (1983). *Stress, coping, and development in children*. Paper presented at the Seminar on Stress and Coping in Children, 1979, Ctr for Advanced Study in the Behavioral Sciences, Stanford, CA, US.
- Gerull, F. C., & Rapee, R. M. (2002). Mother knows best: Effects of maternal modelling on the acquisition of fear and avoidance behavior in toddlers. *Behavior Research and Therapy*, 40, 279-287. [http://dx.doi.org/10.1016/S0005-7967\(01\)00013-4](http://dx.doi.org/10.1016/S0005-7967(01)00013-4)
- Grüner, K., Muris, P., & Merckelbach, H. (1999). The relationship between anxious rearing behaviours and anxiety disorders symptomatology in normal children. *Journal of Behavior Therapy and Experimental Psychiatry*, 30(1), 27-35. [http://dx.doi.org/10.1016/S0005-7916\(99\)00004-X](http://dx.doi.org/10.1016/S0005-7916(99)00004-X)
- Ha, T., Overbeek, G., Vermulst, A., & Engels, C. M. E. (2009). Marital quality, parenting, and adolescent internalizing problems: A three-wave longitudinal study. *Journal of Family Psychology*, 23(2), 263-267. <http://dx.doi.org/10.1037/a0015204>
- Hadwin, J. A., Garner, M., & Perez-Olivas, G. (2006). The development of information processing biases in childhood anxiety: A review and exploration of its origins in parenting. *Clinical Psychology Review*, 26(7), 876-894. <http://dx.doi.org/10.1016/j.cpr.2005.09.004>
- Hale III, W. W., Engels, R., & Meeus, W. (2006). Adolescent's perceptions of parenting behaviours and its relationship to adolescent Generalized Anxiety Disorder symptoms. *Journal of Adolescence*, 29(3), 407-417. <http://dx.doi.org/10.1016/j.adolescence.2005.08.002>
- Hernandez-Guzman, L., & Sanchez-Sosa, J. J. (1996). Parent-child interactions predict anxiety in Mexican adolescents. *Adolescence*, 31(124), 955-963.
- Hill, J. P., & Holmbeck, G. N. (1986). Attachment and autonomy during adolescence. *Annals of child development*, 3(45), 145-189.
- Holmbeck, G. N., Colder, C., Shapera, W., Westhoven, V., Kenealy, L., & Updegrove, A. (2000). Working with adolescents: Guides from developmental psychology. In P. C. Kendall (Ed.), *Child and adolescent therapy: Cognitive-behavioral procedures* (pp. 334-385). New York: Guilford Press.
- Hudson, J. L., & Rapee, R. M. (2001). Parent-child interactions and anxiety disorders: an observational study. *Behaviour Research and Therapy*, 39(12), 1411-1427. [http://dx.doi.org/10.1016/S0005-7967\(00\)00107-8](http://dx.doi.org/10.1016/S0005-7967(00)00107-8)

- Hudson, J. L., & Rapee, R. M. (2004). From Anxious Temperament to Disorder: An Etiological Model. In R. G. Heimberg, C. L. Turk & D. S. Mennin (Eds.), *Generalized anxiety disorder: Advances in research and practice* (pp. 51-74). New York: Guilford Press.
- Kendall, P.C., Compton, S.N., Walkup, J.T., Birmaher, B., Albano, A.M., Sherrill, J., Ginsburg, G., Rynn, M., McCracken, J., Gosch, E., Keeton, C., Bergman, L., Sakolsky, D., Suveg, C., Iyengar, S., March, J., & Piacentini, J. (2010). Clinical Characteristics of anxiety disordered youth. *Journal of Anxiety Disorders*, 24(3), 360-365. <http://dx.doi.org/10.1016/j.janxdis.2010.01.009>
- Kendall, P. C., & Ollendick, T. H. (2004). Setting the Research and Practice Agenda for Anxiety in Children and Adolescence: A Topic Comes of Age. *Cognitive and Behavioral Practice*, 11, 65-74. [http://dx.doi.org/10.1016/S1077-7229\(04\)80008-7](http://dx.doi.org/10.1016/S1077-7229(04)80008-7)
- Knappe, S., Beesdo-Baum, K., Fehm, L., Lieb, R., & Wittchen, H.-U. (2012). Characterizing the association between parenting and adolescent social phobia. *Journal of Anxiety Disorders*, 26(5), 608-616. <http://dx.doi.org/10.1016/j.janxdis.2012.02.014>
- Kohlmann, C.-W., Schumacher, A., & Streit, R. (1988). Trait anxiety and parental child-rearing behavior: Support as a moderator variable? *Anxiety Research*, 1(1), 53-64. <http://dx.doi.org/10.1080/10615808808248220>
- La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, 26(2), 83-94. <http://dx.doi.org/10.1023/A:1022684520514>
- Last, C. G., Hansen, C., & Franco, N. (1997). Anxious children in adulthood: A prospective study of adjustment. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36(5), 645-652. <http://dx.doi.org/10.1097/00004583-199705000-00015>
- Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1992). DSM-III-R Anxiety disorders in children: Sociodemographic and clinical characteristics. *Journal of the American Academy of Child & Adolescent Psychiatry*, 31(6), 1070-1076. <http://dx.doi.org/10.1097/00004583-19921000-00012>
- Lieb, R., Wittchen, H.-U., Hofler, M., Fuetsch, M., Stein, M. B., & Merikangas, K. R. (2000). Parental Psychopathology, Parenting Styles, and the Risk of Social Phobia in Offspring: A Prospective-Longitudinal Community Study. *Arch Gen Psychiatry*, 57(9), 859-866. <http://dx.doi.org/10.1001/archpsyc.57.9.859>
- Loukas, A. (2009). Examining temporal associations between perceived maternal psychological control and early adolescent internalizing problems. *Journal of Abnormal Child Psychology*, 37(8), 1113-1122. <http://dx.doi.org/10.1007/s10802-009-9335-z>
- Magaña, A. B., Goldstein, M. J., Karno, M., Miklowitz, D. J., Jenkins, J., & Falloon, I. R. (1986). A brief method for assessing expressed emotion in relatives of psychiatric patients. *Psychiatry research*, 17(3), 203-212. [http://dx.doi.org/10.1016/0165-1781\(86\)90049-1](http://dx.doi.org/10.1016/0165-1781(86)90049-1)
- McClure, E. B., Brennan, P. A., Hammen, C., & Le Brocque, R. M. (2001). Parental anxiety disorders, child anxiety disorders, and the perceived parent-child relationship in an Australian high-risk sample. *Journal of Abnormal Child Psychology*, 29(1), 1-10. <http://dx.doi.org/10.1023/A:1005260311313>
- McElhaney, K. B., Allen, J. P., Stephenson, J. C., & Hare, A. L. (2009). Attachment and autonomy during adolescence. *Handbook of adolescent psychology*. <http://dx.doi.org/10.1002/9780470479193.adlpsy001012>
- McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical psychology review*, 27(2), 155-172. <http://dx.doi.org/10.1016/j.cpr.2006.09.002>
- Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 28, 487-495. [http://dx.doi.org/10.1016/0005-7967\(90\)90135-6](http://dx.doi.org/10.1016/0005-7967(90)90135-6)
- Miller, S. R., Brody, G. H., & Murry, V. M. (2010). Mothers' and Fathers' Responsive Problem Solving with Early Adolescents: Do Gender, Shyness, and Social Acceptance Make a Difference? *Journal of Child and Family Studies*, 19(3), 298-307. <http://dx.doi.org/10.1007/s10826-009-9297-3>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(7). <http://dx.doi.org/10.1371/journal.pmed.1000097>
- Muris, P. (2002). Parental rearing behaviors and worry of normal adolescents. *Psychological Reports*, 91(2), 428-430. <http://dx.doi.org/10.2466/pr0.2002.91.2.428>
- Muris, P., Meesters, C., Schouten, E., & Hoge, E. (2004). Effects of perceived control on the relationship between perceived parental rearing behaviors and symptoms of anxiety and depression in nonclinical preadolescents. *Journal of Youth and Adolescence*, 33(1), 51-58. <http://dx.doi.org/10.1023/A:1027334314021>

- Niditch, L. A., & Varela, R. E. (2012). Perceptions of parenting, emotional self-efficacy, and anxiety in youth: Test of a mediational model. *Child & Youth Care Forum*, 41(1), 21-35. <http://dx.doi.org/10.1007/s10566-011-9150-x>
- Orvaschel, H., & Puig-Antich, J. (1987). *Schedule for Affective Disorder and Schizophrenia for School-age Children: Epidemiologic Version: Kiddie-SADS-E (K-SADS-E)*.
- Paikoff, R. L., & Brooks-Gunn, J. (1991). Do parent-child relationships change during puberty? *Psychological bulletin*, 110(1), 47. <http://dx.doi.org/10.1037/0033-2909.110.1.47>
- Pedersen, W. (1994). Parental relations, mental health and delinquency in adolescents. *Adolescence*, 29(116), 975-990.
- Peterson, R. A., & Brown, S. P. (2005). On the use of beta coefficients in meta-analysis. *Journal of Applied Psychology*, 90(1), 175. <http://dx.doi.org/10.1037/0021-9010.90.1.175>
- Pine, D., Cohen, P., Gurley, D., Brook, J., & Ma, Y. (1998). The risk for early adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Archives of General Psychiatry*, 55, 56-64. <http://dx.doi.org/10.1001/archpsyc.55.1.56>
- Rachman, S. (1977). The conditioning theory of fear acquisition: A critical examination. *Behaviour Research & Therapy*, 15, 375-387. [http://dx.doi.org/10.1016/0005-7967\(77\)90041-9](http://dx.doi.org/10.1016/0005-7967(77)90041-9)
- Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review*, 17(1), 47-67. [http://dx.doi.org/10.1016/S0272-7358\(96\)00040-2](http://dx.doi.org/10.1016/S0272-7358(96)00040-2)
- Rapee, R. M. (2009). Early adolescents' perceptions of their mother's anxious parenting as a predictor of anxiety symptoms 12 months later. *Journal of Abnormal Child Psychology*, 37(8), 1103-1112. <http://dx.doi.org/10.1007/s10802-009-9340-2>
- Rapee, R. M., Schniering, C. A., & Hudson, J. L. (2009). Anxiety Disorders During Childhood and Adolescence: Origins and Treatment. *Annual Review of Clinical Psychology*, 5, 311-341. <http://dx.doi.org/10.1146/annurev.clinpsy.032408.153628>
- Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*, 6(2), 271-280. <http://dx.doi.org/10.1007/BF00919131>
- Reynolds, S., Wilson, C., Austin, J., & Hooper, L. (2012). Effects of psychotherapy for anxiety in children and adolescents: A meta-analytic review. *Clinical Psychology Review*, 32, 251-262. <http://dx.doi.org/10.1016/j.cpr.2012.01.005>
- Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: a meta-analysis. *Psychological bulletin*, 116(1), 55. <http://dx.doi.org/10.1037/0033-2909.116.1.55>
- Schaefer, E. S. (1965). Children's report of parental behavior: An inventory. *Child Development*, 36(417-424). <http://dx.doi.org/10.2307/1126465>
- Schludermann, E., & Schludermann, S. (1988). *Children's Report on Parent Behavior (CRPBI-108, CRPBI-30) for older children and adolescents*. Winnipeg, MB, Canada: University of Manitoba.
- Schwartz, O. S., Dudgeon, P., Sheeber, L. B., Yap, M. B. H., Simmons, J. G., & Allen, N. B. (2012). Parental behaviors during family interactions predict changes in depression and anxiety symptoms during adolescence. *Journal of Abnormal Child Psychology*, 40(1), 59-71. <http://dx.doi.org/10.1007/s10802-011-9542-2>
- Schwarz, J. C., Barton-Henry, M. L., & Pruzinsky, T. (1985). Assessing child-rearing behaviors: A comparison of ratings made by mother, father, child, and sibling on the CRPBI. *Child Development*, 56(2), 462-479. <http://dx.doi.org/10.2307/1129734>
- Silverman, W. K., & Albano, A. M. (1996). *The Anxiety Disorders Interview Schedule for DSM-IV – Child and Parent Versions*. San Antonio, TX: Psychological Corporation.
- Silverman, W. K., & Nelles, W. B. (1988). The anxiety disorders interview schedule for children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 27, 772-778. <http://dx.doi.org/10.1097/00004583-198811000-00019>
- Soenens, B., Berzonsky, M. D., Vansteenkiste, M., Beyers, W., & Goossens, L. (2005). Identity styles and causality orientations: In search of the motivational underpinnings of the identity exploration process. *European Journal of Personality*, 19(5), 427-442. <http://dx.doi.org/10.1002/per.551>
- Spence, S. H., Donovan, C. L., March, S., Gamble, A., Anderson, R. E., Prosser, S., & Kenardy, J. (2011). A randomized controlled trial of online versus clinic-based CBT for adolescent anxiety. *Journal of Consulting and Clinical Psychology*, 79(5), 629. <http://dx.doi.org/10.1037/a0024512>

- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *State-trait anxiety inventory: STAI*: Consulting Psychologists Press.
- Steinberg, L. (1990). Autonomy, conflict, and harmony in the family relationship.
- Thirlwall, K., & Creswell, C. (2010). The impact of maternal control on children's anxious cognitions, behaviours and affect: an experimental study. *Behaviour Research and Therapy*, 48(10), 1041–1046.
<http://dx.doi.org/10.1016/j.brat.2010.05.030>
- van Brakel, M. L., Muris, P., Bögels, S. M., & Thomassen, C. (2006). A Multifactorial Model for the Etiology of Anxiety in Non-Clinical Adolescents: Main and Interactive Effects of Behavioral Inhibition, Attachment and Parental Rearing. *Journal of Child and Family Studies*, 15(5), 569-579. <http://dx.doi.org/10.1111/j.1469-7610.2008.01898.x>
- van der Bruggen, C. O., Stams, G. J. J. M., & Bögels, S. M. (2008). Research review: The relation between child and parent anxiety and parental control: a meta-analytic review. *Child Psychology and Psychiatry*, 49(12), 1257-1269.
- Van Zalk, N., & Kerr, M. (2011). Shy Adolescents' Perceptions of Parents' Psychological Control and Emotional Warmth: Examining Bidirectional Links. *Merrill-Palmer Quarterly-Journal of Developmental Psychology*, 57(4), 375-401. <http://dx.doi.org/10.1353/mpq.2011.0021>
- Vazsonyi, A. T., & Belliston, L. M. (2006). The cultural and developmental significance of parenting processes in adolescent anxiety and depression symptoms. *Journal of Youth and Adolescence*, 35(4), 491-505.
<http://dx.doi.org/10.1007/s10964-006-9064-3>
- Verhoeven, M., Bögels, S. M., & van der Bruggen, C. C. (2012). Unique roles of mothering and fathering in child anxiety: Moderation by child's age and gender. *Journal of Child and Family Studies*, 21, 331-343.
<http://dx.doi.org/10.1007/s10826-011-9483-y>
- Waters, A. M., Zimmer-Gembeck, M. J., & Farrell, L. J. (2012). The relationships of child and parent factors with children's anxiety symptoms: Parental anxious rearing as a mediator. *Journal of Anxiety Disorders*, 26(7), 737-745. <http://dx.doi.org/10.1016/j.janxdis.2012.06.002>
- Weisz, J. R., & Hawley, K. M. (2002). Developmental factors in the treatment of adolescents. *Journal of Consulting and Clinical Psychology*, 70(1), 21-43. <http://dx.doi.org/10.1037/0022-006X.70.1.21>
- Wijsbroek, S. A., Hale III, W. W., Raaijmakers, Q. A., & Meeus, W. H. (2011). The direction of effects between perceived parental behavioral control and psychological control and adolescents' self-reported GAD and SAD symptoms. *European child & adolescent psychiatry*, 20(7), 361-371. <http://dx.doi.org/10.1007/s00787-011-0183-3>
- Wilson, C., Budd, B., Chernin, R., King, H., Leddy, A., Maclennan, F., & Mallandain, I. (2011). The role of meta-cognition and parenting in adolescent worry. *Journal of Anxiety Disorders*, 25(1), 71-79.
<http://dx.doi.org/10.1016/j.janxdis.2010.08.005>
- Wolfradt, U., Hempel, S., & Miles, J. (2003). Perceived parenting styles, depersonalisation, anxiety and coping behaviour in adolescents. *Personality and Individual Differences*, 34(3), 521-532.
[http://dx.doi.org/10.1016/S0191-8869\(02\)00092-2](http://dx.doi.org/10.1016/S0191-8869(02)00092-2)
- Wood, J. J. (2006). Parental intrusiveness and children's separation anxiety in a clinical sample. *Child Psychiatry and Human Development*, 37, 73-87. <http://dx.doi.org/10.1007/s10578-006-0021-x>
- Wuthrich, V. M., Rapee, R. M., Cunningham, M. J., Lyneham, H. J., Hudson, J. L., & Schniering, C. A. (2012). A Randomized Controlled Trial of the Cool Teens CD-ROM Computerized Program for Adolescent Anxiety. *Journal of the American Academy of Child and Adolescent Psychiatry*, 51(3), 261-270.
<http://dx.doi.org/10.1016/j.jaac.2011.12.002>

**Chapter 4 Paper 3: Observing Interactions between Children and
Adolescents and Their Parents: The Effects of Anxiety Disorder and Age**

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Observing Interactions between Children and Adolescents and their Parents: The Effects of Anxiety Disorder and Age

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Abstract Parental behaviors, most notably overcontrol, lack of warmth and expressed anxiety, have been implicated in models of the development and maintenance of anxiety disorders in children and young people. Theories of normative development have proposed that different parental responses are required to support emotional development in childhood and adolescence, yet age has not typically been taken into account in studies of parenting and anxiety disorders. In order to identify whether associations between anxiety disorder status and parenting differ in children and adolescents, we compared observed behaviors of parents of children (7–10 years) and adolescents (13–16 years) with and without anxiety disorders ($n=120$), while they undertook a series of mildly anxiety-provoking tasks. Parents of adolescents showed significantly lower levels of expressed anxiety, intrusiveness and warm engagement than parents of children. Furthermore, offspring age moderated the association between anxiety disorder status and parenting behaviors. Specifically, parents of adolescents with anxiety disorders showed higher intrusiveness and lower warm engagement than parents of non-anxious adolescents. A similar relationship between these parenting behaviors and anxiety disorder status was not observed among parents of children. The findings suggest that theoretical accounts of the role of parental behaviors in anxiety disorders in children and adolescents should distinguish between these different developmental periods. Further experimental research to establish causality, however, would be required

before committing additional resources to targeting parenting factors within treatment.

Keywords Childhood · Adolescence · Anxiety · Parenting · Behavior

Anxiety disorders are highly prevalent among children and adolescents (Essau and Gabbidon 2013) and have negative consequences (Last et al. 1997; Pine et al. 1998). As such it is critical to identify key factors that are involved in the development and maintenance of anxiety disorders in young people in order to inform prevention and treatment. Theoretical models have implicated a number of family factors that appear to play a role, including genetics, adverse life events, parental psychopathology, as well as parenting behaviors (Creswell et al. 2011; Rapee et al. 2009).

Parental behaviors, most notably overcontrol, lack of warmth and expressed anxiety are hypothesized to promote anxiety among children and young people, especially among those who already experience elevated trait anxiety (Wood et al. 2003). Overcontrol is characterized by parental overinvolvement, where the parent takes over doing tasks that the child is capable of doing independently and encourages the child to be excessively dependent on them, in an attempt to protect the child from possible distress or harm (e.g., McLeod et al. 2007; Rapee 1997; Rothbaum and Weisz 1994; Wood 2006). Theoretical models propose that parental overcontrol impacts on the child's sense of self-efficacy, limits his or her experience of novel situations and constrains his or her ability to manipulate or engage in the environment independently (Chorpita and Barlow 1998; Rapee 1997; Wood 2006). In contrast, parental autonomy-granting, where the child is encouraged to be independent, develop his or her own opinions and make decisions for himself or herself, has been suggested

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to increase a sense of mastery over the environment, leading to a reduction in anxiety (Chorpita and Barlow 1998). Two meta-analyses, including studies of both community and clinical participants, have found a medium-sized association between parental control and child anxiety (McLeod et al. 2007; van der Bruggen et al. 2008), with relatively stronger associations for the sub-dimension of autonomy granting than other dimensions, such as over-involvement, particularly when using observational assessment strategies (McLeod et al. 2007).

A further dimension of potential relevance is that of rejection, where the parent may be critical or hostile towards the child, or the relationship is characterized by a lack of warmth, involvement, emotional support or reciprocity (McLeod et al. 2007). This may increase the child's sensitivity to anxiety by undermining his or her ability to regulate emotion (Chorpita and Barlow 1998; McLeod et al. 2007). In their meta-analysis, McLeod et al. (2007) reported a small but significant association between parental rejection and child anxiety; although there is some need for caution as many of the studies assessed parental rejection on the basis of child/adolescent report which may be subject to bias. Furthermore it has been suggested that parental rejection or lack of warmth may be more strongly associated with symptoms of depression than anxiety (Rapee 1997), making it possible that associations with anxiety may actually be accounted for by overlapping symptoms of low mood.

In addition to the two broad constructs of control and rejection, it has been hypothesized that parents may reinforce child anxiety by modeling and/or reinforcing anxious behaviors (Rachman 1977), through 'anxious rearing' behaviors. There is some evidence that parental expressed anxiety promotes the development of anxious or fearful cognitions, behaviors and symptoms (Askew and Field 2007; De Rosnay et al. 2006; Gerull and Rapee 2002; Grüner et al. 1999; Waters et al. 2012).

Although there is now a large body of research examining these parenting behaviors in relation to anxiety in young people, it is striking that age has not typically been taken into account as theories of normative development have proposed that different parental responses are required to support emotional development in childhood and adolescence. One of the central tasks in adolescence is for the adolescent to separate from parents and become increasingly independent as they approach adulthood (Steinberg 2001). As such, there are greater expectations on the adolescent to be autonomous, especially within the school environment (Eccles and Harold 1993). This then requires a renegotiation of the parent-child relationship and for parents to find an effective balance between autonomy and control (Steinberg and Silk 2002). Additionally, normative changes in adolescence have implications for parental warmth/rejection. Larson et al. (2002) examined negative affect in children and adolescents from the age of 10 to 14 years and found that as age increased, so did reports of daily negative emotional states. As cognitive abilities develop, adolescents' more critical, logical thinking results in parents no longer being

idealized and previously accepted parental rules being challenged (Steinberg and Silk 2002). Although there do not appear to be higher rates of conflict with parents in adolescence generally (Steinberg 2001), affect intensity during conflict has been shown to increase from early to mid-adolescence (Laursen et al. 1998) and adolescents report decreasing rates of affectionate behavior towards their parents (Eberly and Montemayor 1999). Compared to children, adolescents undertake fewer shared activities with their parents and spend considerably less time with their family (Larson and Richards 1991). Taken together, these results suggest that parenting of anxious adolescents may involve lower levels of warmth and higher levels of rejection/hostility than middle childhood, and that parental control may continue to be of relevance. However, this has not been addressed in the existing literature. Instead the majority of studies involve pre-adolescent children (e.g., Grüner et al. 1999; Hirshfeld et al. 1997; Siqueland et al. 1996), or include both children and adolescents with analyses conducted across the age ranges (e.g., Barrett et al. 2002; Muris et al. 1996).

A recent systematic review examining evidence for an association between parenting behaviors and adolescent anxiety (Waite et al. 2014) found fairly consistent, preliminary evidence for an association between anxiety and perceived parental control and anxious rearing in adolescence, with effect sizes in the small to medium range (e.g., van Brakel et al. 2006; Van Zalk and Kerr 2011; Wijsbroek et al. 2011; Wolfardt et al. 2003). The findings relating to an association between adolescent anxiety and perceived parental rejection and lack of warmth were somewhat less consistent, but where associations were significant, effect sizes were also in the small to medium range (e.g., Hudson and Rapee 2001; Schwartz et al. 2012; Verhoeven et al. 2012). The results of the two studies that have examined prospective relationships between adolescent anxiety and perceptions of parental control (Van Zalk and Kerr 2011; Wijsbroek et al. 2011) provided support for bi-directional effects although interestingly, effect sizes were somewhat stronger (with small to medium effects) for adolescent symptoms of anxiety predicting later higher levels of perceived parental control than for perceptions of control predicting later adolescent anxiety. This is further supported by the findings of Hale et al. (2013), where adolescent symptoms of generalized anxiety disorder predicted later perceptions of both parental rejection and overcontrol. However, the majority of the studies identified were limited by a reliance on adolescent reported parenting and restriction to community populations, limiting conclusions that can be drawn about actual (rather than perceived) parental responses and clinical groups.

Only one study to date has examined associations between parenting and anxiety separately for children and adolescents (Hudson and Rapee 2001). Post-hoc analyses following an observational study with clinically anxious and non-clinical children, identified a significant effect of child/adolescent age (age groups were 7–9, 10–11 and 12–13 years) on

observed maternal involvement during two cognitive tasks, with mothers providing significantly less help as the child got older. There was not, however, a significant interaction between child/adolescent age and anxiety status on maternal involvement, nor a significant effect of age, or the interaction between age and anxiety status, for maternal negativity. While these findings highlight the potential differences in parenting behaviors with child age, conclusions are limited by (i) the small sample sizes within each subgroup (clinically anxious $n=43$ and non-clinical $n=32$, split between three age groups), and (ii) the broad parenting constructs used, which included, for example, consideration of aspects of behaviors (such as parental positioning) which could reflect parental encouragement in the control scale, and behaviors which could reflect maternal anxiety (such as maternal tension) in the negativity scale. This is an important consideration given suggestions that more specifically defined parenting behaviors are more strongly associated with child anxiety disorder status (McLeod et al. 2007). As such, further research is necessary to help identify the critical parental processes that are associated with anxiety disorders during different developmental periods to help inform clinical interventions targeted at specific age ranges.

The current study builds on previous work by using observational methods and examining the effects of anxiety disorder, age group and their interaction on parenting behaviors. As parental responses are likely to be influenced by the degree to which offspring express anxiety during interaction tasks (Creswell et al. 2013; Rapee 1997), we also measured child/adolescent observed behaviors and accounted for this in analyses. The following hypotheses were examined:

1. Parents of offspring with anxiety disorders will exhibit significantly higher levels of intrusiveness and anxiety and significantly lower levels of positive behaviors (i.e. warmth, engagement and encouragement) than parents of non-anxious offspring.
2. Parents of children will show significantly higher levels of intrusiveness and positive behaviors (i.e. warmth, engagement and encouragement) than parents of adolescents.

Given the lack of theory or prior evidence to guide directional hypotheses we also set out to explore whether offspring age group moderated the association between anxiety disorder status and parenting behaviors.

Method

Participants

Ethical approval for the study was given by the National Research Ethics Service (NRES) London - Brent Research

Ethics Committee and the University of Reading Ethics Committee. All participants provided informed consent prior to taking part in the research.

Children and Adolescents with Anxiety Disorders All children and adolescents with anxiety disorders were referred by primary and secondary care services for the assessment and treatment of an anxiety disorder. To be included in the study, all children/adolescents were required to meet diagnostic criteria for a current anxiety disorder on the Anxiety Disorders Interview Schedule (ADIS-C/P; Silverman and Albano 1996) and for this to be identified as the primary problem. They were not invited to participate if they had psychotic symptoms, substance dependence, an autistic spectrum disorder, conduct disorder, a risk of deliberate self-harm, if they were taking psychoactive medication, currently receiving therapy for their anxiety disorder or if they, or their parent, did not understand and speak English at a level that would enable them to complete the procedures or had any significant intellectual impairment. Five adolescents were excluded based on the study exclusion criteria (two because of a risk of deliberate self-harm and three because they were taking psychoactive medication). No children were excluded on the basis of the study exclusion criteria.

Thirty adolescents aged between 13 and 16 years were recruited prior to commencing treatment, along with the parent identified as their primary caregiver. We then selected 30 children aged 7–10 years, who had been diagnosed with an anxiety disorder and had completed the same assessment with their mothers as part of a wider study. The children with anxiety disorders were selected to match the adolescent group on their primary anxiety disorder, comorbid mood and behavior disorders, gender, ethnicity and socio-economic status. Table 1 provides demographic information for all participants. As shown in Table 1, although the adolescent group included parents of both sex, very few fathers took part and so the difference between the groups was not significant.

For both groups, the primary anxiety disorder diagnoses were: social anxiety disorder ($n=8$, 27 %), specific phobia ($n=9$, 30 %), generalized anxiety disorder ($n=7$, 23 %), panic disorder with/without agoraphobia ($n=5$, 17 %), and agoraphobia without panic disorder ($n=1$, 3 %). The groups did not differ significantly in the mean severity rating for the primary diagnosis (children: mean=5.30 ($SD=0.84$); adolescents: mean=5.53 ($SD=0.94$); $t(58)=1.02$, $p=.31$). The children did, however, experience significantly more comorbid anxiety disorders than the adolescents (children: mean=1.3 ($SD=1.21$); adolescents: mean=0.77 ($SD=0.82$); $t(58)=-2.00$, $p=.05$). In terms of comorbid mood disorders, 4 young people (13 %) in each group had been diagnosed with dysthymic disorder and one young person (3 %) with major depressive disorder. For comorbid behavior disorders, 2 young people (7 %) in each group were diagnosed with oppositional defiant

Table 1 Sample characteristics

	Anxious children (<i>n</i> =30)	Non-anxious children (<i>n</i> =30)	Anxious adolescents (<i>n</i> =30)	Non-anxious adolescents (<i>n</i> =30)	Statistics
Child/adolescent gender (boys: girls)	14:16	20:10	14:16	16:14	$\chi^2(3)=3.21, p=.36$
Age in months (mean, <i>SD</i> , range)	112.20 (10.49), 94–130 ^a	110.60 (9.77), 96–131	181.50 (13.48), 158–198 ^a	183.03 (13.79), 161–205	$F(3, 116)=348.21, p<.001$
Ethnicity (% White British)	93 %	93 %	93 %	90 %	$\chi^2(3)=15.03, p=.95$
Family SES (% “higher” or “professional”)	67 %	73 %	67 % ^a	97 % ^a	$\chi^2(3)=10.01, p=.02$
Parent gender (% female)	100 %	100 %	93 %	90 %	$\chi^2(3)=5.64, p=.13$
SCAS-c total (mean, <i>SD</i>)	36.20 (19.03)	27.89 (10.74)	39.23 (17.62) ^b	10.97 (5.54) ^b	$F(3, 111)=22.30, p<.001$
SCAS-p total (mean, <i>SD</i>)	36.03 (14.75) ^a	13.97 (5.86) ^a	31.77 (18.52) ^b	6.87 (3.15) ^b	$F(3, 111)=36.32, p<.001$
SMFQ-c total (mean, <i>SD</i>)	6.70 (4.50)	4.79 (3.20)	7.34 (5.77) ^b	2.17 (2.41) ^b	$F(3, 111)=8.86, p<.001$
SMFQ-p total (mean, <i>SD</i>)	6.60 (4.97) ^a	1.83 (2.28) ^a	8.63 (7.89) ^b	1.43 (1.92) ^b	$F(3, 111)=15.01, p<.001$

Where self-report data was missing, this was less than 10 % of the dataset. Superscript letters refer to pairwise comparisons (conducted for children with AD versus adolescents with AD, children with AD versus non-anxious children, and adolescents with AD versus non-anxious adolescents); means that share subscripts within rows are significantly different at $p<.05$

disorder. As can be seen in Table 1, the clinical groups did not differ significantly on self- and parent-report measures of symptoms of anxiety (Spence Child Anxiety Scale - Child and Parent versions (SCAS-C/P); Spence 1998) (SCAS-C: $t(57)=0.48, p=.65$; SCAS-P: $t(58)=-0.99, p=.35$), self- and parent-report measures of symptoms of low mood (Short Mood and Feelings Questionnaire - Child and Parent versions (SMFQ-C/P); Angold et al. 1995) (SMFQ-C: $t(57)=0.48, p=.63$; SMFQ-P: $t(57)=1.25, p=.25$) and parent-reported behavioral problems (Strengths and Difficulties Questionnaire (SDQ-P) conduct subscale; Goodman 1997) (SDQ-P conduct: $t(58)=-1.19, p=.24$).

Non-anxious Children and Adolescents Thirty non-anxious adolescents aged 13–16 years were recruited, along with their primary caregiver. A further 30 non-anxious children aged 7–10 years were selected from a wider study to match the children/adolescent groups where possible on demographic variables. All non-anxious participants were recruited through advertisements in newsletters of local schools and youth groups. Families received a gift voucher as a token of appreciation for their participation. To be included in the study, all non-anxious participants were required to score below clinical cut-offs on the SCAS-P and the SMFQ-P and the parent identified as their primary caregiver also had to agree to take part. As with the anxious participants, non-anxious children and adolescents were not eligible if they, or their parent, did not understand and speak English at a level required to participate in the study, had any significant intellectual impairment, or if they were having therapy or taking medication for any psychological problems. As can be seen in Table 1, there was not a significant difference in age between the two child groups and the two adolescent groups, nor were there any significant

differences between all the groups for ethnicity or parent gender. However, significantly more of the non-anxious adolescent group came from families where parental occupational status was classified as higher/professional (Office for National Statistics 2005) than the other groups.

As expected, on symptom measures, the adolescents with anxiety disorders scored significantly higher than the non-anxious adolescents on self- and parent-report measures of symptoms of anxiety (SCAS-C: $t(56)=8.18, p=.001$; SCAS-P: $t(56)=7.00, p=.001$), low mood (SMFQ-C: $t(56)=4.44, p<.01$; SMFQ-P: $t(56)=4.83, p<.01$), and parent-reported behavioral problems (SDQ-P conduct: $t(56)=2.38, p<.05$). Similarly, the children with anxiety disorders scored significantly higher than the non-anxious children on parent-reported symptoms of anxiety (SCAS-P: $t(55)=7.36, p=.001$), low mood (SMFQ-P: $t(55)=4.49, p=.001$), and behavioral problems (SDQ-P conduct: $t(55)=2.85, p<.01$). Although the children with anxiety disorders reported a greater number of symptoms of anxiety and low mood than the non-anxious children, the differences fell just short of significance (SCAS-C: $t(55)=1.96, p=.07$; SMFQ-C: $t(55)=1.80, p=.08$).

Procedure

For the children and adolescents with anxiety disorders, the child/adolescent and their parent were seen separately by trained psychology BSc/MSc graduates (assistant psychologists or trainee clinical psychologists) to undertake a diagnostic assessment (relating to the child/adolescent) and complete standardized questionnaires. For the non-anxious children and adolescents, if they expressed an interest in the study, they were sent consent forms, information sheets and the screening

measures to complete and return. Potential participants from all groups were then contacted by a researcher to discuss further, and if they were eligible and agreed to take part, to arrange the assessment appointment. This appointment involved an observational assessment at the university, during which they carried out a series of mildly anxiety-provoking tasks, which were video-recorded. The procedure was administered by the researcher (PW) or trained psychology (BSc/ MSc) graduates who received regular supervision. Videos of the parent-offspring interactions were coded by trained psychology (BSc/ MSc) graduates who were blind to both participant group and the study hypotheses.

Measures

Diagnoses Children and adolescents' diagnoses were determined using the ADIS-C/P (Silverman and Albano 1996). This is a structured interview, with good psychometric properties (Silverman et al. 2001), designed to assess current DSM-IV anxiety disorders, as well as current mood and behavioral disorders. As is standard, if the child/adolescent met symptom criteria for a diagnosis, on the basis of his/her report or that of his/her parent, the assessor assigned a Clinician Severity Rating (CSR), ranging from 0 (absent or none) to 8 (very severely disturbing/disabling); a CSR of 4 or more based on the child/adolescent and/or parent report indicated the child/adolescent met criteria for diagnosis. The diagnosis with the highest CSR was classed as the primary diagnosis. For each assessor, the first 20 interviews were discussed with a consensus team led by an experienced diagnostician (Consultant Clinical Psychologist). After 20 ADIS assessments had been double coded by the consensus team, reliability was formally checked and raters were required to be reliable at a kappa/intraclass correlation of 0.85 before being considered reliable. Once reliability had been achieved, every sixth independent assessment was discussed with the consensus team to prevent rater drift. Overall reliability for the assessment team was good to excellent; reliability for the ADIS-C/P diagnosis was: child report, $M=0.97$ (range 0.88 – 1.00), parent report, $M=0.98$ (range 0.92 – 1.00) and for CSR scores was: child report, $M=0.98$ (range 0.91 – 1.00) and parent report, $M=0.98$ (range 0.96 – 1.00).

Symptom Measures The Spence Children's Anxiety Scale (SCAS-C/P; Spence 1998) assesses child/adolescent and parent-reported anxiety symptoms. It includes 38 items (and 6 positive filler items in the child version), each scored on a 4-point Likert scale, ranging from 0 (never) to 3 (always). The measure has been validated for use with children/adolescents aged from 6 to 18 years and both versions have good reliability, as well as discriminant and convergent validity (Nauta

et al. 2004; Spence et al. 2003). Internal consistency for these scales was excellent (SCAS-C $\alpha=0.92$; SCAS-P $\alpha=0.94$).

The Short Mood and Feelings Questionnaire (SMFQ-C/P; Angold et al. 1995) is a self-report measure to assess child/adolescent depressive symptoms. There are versions for children/adolescents and parents to complete; both versions have 13 items and each item is scored on a 3-point scale (*not true, sometimes* or *true*). The scale has been validated with children/adolescents aged 6–17 years and has good internal reliability and discriminant validity (Angold et al. 1995). Internal consistency for the SMFQ was good to excellent (SMFQ-C $\alpha=0.86$; SMFQ-P $\alpha=0.93$).

The conduct problems subscale of the Strengths and Difficulties Questionnaire (SDQ-P) (Goodman 1997) was administered to assess parent-reported behavioral disturbance. Five items are scored on a 3-point scale (*not true, somewhat true* and *certainly true*). The scales show acceptable internal consistencies and retest reliability (Goodman 2001). The parent-report version of the SDQ was used as parents are often considered to be most reliable in reporting on children's externalizing symptoms (Grills and Ollendick 2003). Although internal consistency was poor (SDQ-P conduct problems $\alpha=0.57$), this is likely to reflect the relatively low number of items in the subscale.

Observational Measures of Parenting Three challenge tasks were administered to participants: a mysterious black box, tangram puzzles and a speech task. These tasks have been demonstrated to be associated with mild levels of self-reported and observed anxiety and increases in autonomic arousal, in comparison to baseline, for both children with anxiety disorders and non-anxious children (Alkozei et al. 2015). The black box task was designed to invoke mild anxiety around specific objects following Creswell et al. (2013). Children and parents were first asked to discuss the possible contents of the box before the child/adolescent placed his/her hands through each of four holes (with the contents obscured) to discover what was inside. The box contained a fluffy toy, a rubber toy, a feather boa and some slime. The tangram task was designed to invoke anxiety around performance following Hudson and Rapee (2001). The child/adolescent was instructed to put puzzle pieces together to fit into larger shape templates within 5 min. Following Hudson and Rapee (2001), the puzzles were selected to be difficult. Parents were told that this was a test of their child's ability and given the puzzle solutions, but were told to help their child only if they needed it. The speech task followed the procedures of Creswell et al. (2013) and Gar and Hudson (2008). The child/adolescent and parent were given some suggestions of topics to talk about and were left alone for between 3 and 5 min to prepare for the presentation. The parent was told that most children/adolescents found it a bit difficult to get going, so they could help their son or daughter if they thought they

really needed it. In the second part, the parent was asked to introduce the presentation and then the child/adolescent was given between 3 and 5 min to present their speech, in the presence of their parent. The tangram and the speech task were adapted for the different age groups in terms of level of difficulty of the puzzles and the length of time given for the speech task, but the mysterious box task was identical for both age groups because the task involved dealing with the unknown and therefore adaptations were unnecessary.

Observed child/adolescent and parental behaviors were rated by psychology graduates using a coding scheme developed by Murray et al. (2012) and adapted for this age range and tasks by Creswell et al. (2013). Each behavior was rated on a scale of 1 to 5, with 1 being *none* and 5 *pervasive/strong*. Each minute was rated separately and then a mean score was calculated for each behavior on each task. For parenting behaviors, the following codes were used:

Negative behaviors, each rated each minute along the 1 (*none*) to 5 (*pervasive/strong*) scale:

- a. Expressed anxiety (i.e., modeling of anxiety). Anxiety in facial expression (e.g., fearful expression, biting lip), body movements (e.g., rigid posture, wringing hands), and speech (e.g., rapid, nervous, or inhibited).
- b. Passivity. Withdrawn and inhibited, unresponsive to child behavior and communication (e.g., physically distant, silent).
- c. Promotion of avoidance. Actively encourages/supports child avoidance of task (e.g., saying “you don’t have to do it”).
- d. Overprotection. Initiates emotional and/or practical support that is not required (e.g., stroking/ kissing/offering unnecessary help while child/adolescent manages independently).
- e. Intrusiveness. Interferes, verbally or physically, cutting across child behavior, attempts to take over and imposes own agenda.

Positive behaviors, each rated each minute along the 1 (*none*) to 5 (*pervasive/strong*) scale:

- a. Encouragement (autonomy-promotion). Provides positive motivation to child to engage in the task, showing both interest in the task (e.g., making suggestions and asking questions) and enthusiasm regarding both task and child capacity/efforts (e.g., displaying positive affect, positive tone of voice, smiling, laughing).
- b. Warmth. Affectionate, expresses positive regard for child/adolescent, both verbally and physically.
- c. Engagement. Involvement and interest in what the child is doing (e.g., orienting body to child, asking the child what they are doing, showing an interested response).

For child/adolescent behavior, the following codes were used, each rated each minute along the 1 (*none*) to 5 (*pervasive/strong*) scale:

- a. Expressed anxiety. Anxiety in facial expression (e.g., fearful expression, biting lip), body movements (e.g., rigid posture, wringing hands), and speech (e.g., rapid, nervous, inhibited).
- b. Avoidance. Non-verbal or verbal avoidance (e.g., reluctance or refusal to approach or do the task).

Coders were trained using video tapes that were not part of this study. For each task, a second coder independently rated a random sample of 20 videos and reliability was formally checked. Coders were required to be reliable at a kappa/intraclass correlation of 0.7 or above for every code before being considered reliable. Intraclass correlations showed high levels of agreement between raters for all codes: parental expressed anxiety, $M=0.95$ (range 0.88 – 1.00 across tasks/raters); passivity, $M=0.97$ (range 0.95 – 1.00); promotion of avoidance, $M=0.97$ (range 0.85 – 1.00); overprotection, $M=0.96$ (range 0.87 – 1.00); intrusiveness, $M=0.93$ (range 0.78 – 0.99); encouragement, $M=0.93$ (range 0.85 – 0.98); warmth, $M=0.96$ (range 0.93 – 0.98); engagement, $M=0.90$ (range 0.78 – 0.98); child/adolescent expressed anxiety, $M=0.93$ (range 0.91–0.94), and child/adolescent avoidance, $M=0.98$ (range 0.92 – 1.00).

Results

Data Reduction, Analytic Strategy and Preliminary Analyses

As the majority of continuous data was highly skewed and violated assumptions of normality, analyses were run parametrically with 1,000 bootstrap samples. Overprotection, passivity and promotion of avoidance were uncommon, with only 5.2–12.0 % of parents rated above the minimum score across all tasks for these behaviors, and therefore these codes were not included in the analyses. The codes of warmth and engagement correlated highly on every task ($r=0.60 - 0.85$) and were therefore combined for analyses as a ‘warm engagement’ dimension. Inter-correlations between parenting behaviors across all tasks are shown in Table 2. Child/adolescent observed anxiety and avoidance correlated at 0.50 and so analyses were run for these behaviors separately and then as a single, combined variable. As the results were largely consistent when the variables were combined, for brevity, this will be presented. We examined behaviors in each different task and across all tasks combined; again, as findings were broadly consistent, we have presented the combined behavior ratings across all tasks for brevity (see Table 3).

Table 2 Spearman's correlations between different parenting behavior codes

	Expressed anxiety	Passivity	Promotion of avoidance	Overprotection	Intrusiveness	Encouragement	Warmth	Engagement
Expressed anxiety	–							
Passivity	0.28**	–						
Promotion of avoidance	0.17	–0.03	–					
Overprotection	0.15	0.03	–0.01	–				
Intrusiveness	0.53***	0.15	0.18*	0.04	–			
Encouragement	–0.15	–0.39**	–0.02	0.18	–0.19*	–		
Warmth	0.06	–0.06	–0.10	0.21*	–0.12	0.58***	–	
Engagement	0.12	–0.16	–0.08	0.22*	0.07	0.59***	0.79***	–

* $p < .05$, ** $p < .01$, *** $p < .001$

To address the hypotheses, multivariate analyses of variance (MANOVA), using Pillai's trace, were carried out, with anxiety (anxiety disorder or non-anxious), age group (child or adolescent) and their interaction entered as independent variables. For the analysis of parenting behavior across the tasks, parental expressed anxiety, intrusiveness, warm engagement and encouragement were entered as dependent variables. Where the effects of the interaction were significant, t-tests were used to explore differences between groups; comparisons were not made between the two non-anxious control groups as this comparison did not relate to the study hypotheses, and to reduce the likelihood of Type I error. To assess age and anxiety group based differences in child/adolescent behavior, MANOVA were conducted with the dependent variable as observed anxiety/avoidance. For child/adolescent observed anxiety/avoidance across the tasks, there was no significant effect of age group ($F[1, 116]=0.68, p=.41, \omega^2 < 0.001$), but there was a significant effect of anxiety disorder ($F[1, 116]=18.10, p < .001, \omega^2=0.12$), with children/adolescents with an anxiety disorder (mean=1.57, $SD=0.36$) displaying higher levels of observed anxiety/avoidance than non-anxious children/adolescents (mean=1.34, $SD=0.25$). The anxiety disorder x age group interaction was also significant ($F[1, 116]=11.16, p=.001, \omega^2=0.07$). Adolescents with an anxiety disorder had significantly higher levels of observed anxiety/avoidance across the tasks, compared to non-anxious

adolescents ($t(58)=5.11, p=.001, d=1.32$). There was not, however, a significant difference between children with an anxiety disorder and non-anxious children ($t(58)=0.68, p=.50, d=0.18$), or between children and adolescents with anxiety disorders ($t(58)=1.48, p=.15, d=0.39$). Because there were significant differences between groups in child/adolescent anxiety/avoidance, the analysis of parenting behaviors was repeated using MANCOVA, with child/adolescent anxiety/avoidance entered as a covariate. The results of the MANCOVA were similar to the results of the original analyses and so the original results will be presented but where there were differences between the findings, this will be highlighted. Similarly, although the clinically anxious groups were matched for mood disorder diagnoses, we conducted the analyses examining depressive symptoms, with scores on the SMFQ as a covariate (run separately for parent and child/adolescent report), and then repeated the analyses excluding the five children and five adolescents with comorbid mood disorders. Again, results were broadly consistent but where there was a difference in findings, this is highlighted. Finally, because there were group differences on SES and SDQ-P conduct, further sensitivity analyses were undertaken using MANCOVA, examining parental behavior with SES and then SDQ-P conduct as a covariate. As this did not change the results, analyses are reported without the inclusion of SES or SDQ-P conduct.

Table 3 Group differences in child/adolescent and parent behaviors across all tasks

		Anxious children ($n=30$)	Non-anxious children ($n=30$)	Anxious adolescents ($n=30$)	Non-anxious adolescents ($n=30$)
Child/adolescent	Anxiety/avoidance (mean, SD)	1.50 (0.32)	1.45 (0.24)	1.64 (0.39) ^a	1.23 (0.20) ^a
Parent	Anxiety (mean, SD)	1.93 (0.56) ^a	1.80 (0.39)	1.23 (0.16) ^{a b}	1.15 (0.15) ^b
	Intrusiveness (mean, SD)	1.65 (0.57) ^a	1.82 (0.44)	1.31 (0.22) ^{a b}	1.19 (0.19) ^b
	Positive behaviour (mean, SD)	3.30 (0.44) ^a	3.12 (0.49)	2.80 (0.36) ^{a b}	3.13 (0.38) ^b
	Encouragement (mean, SD)	2.88 (0.53)	2.59 (0.54)	2.85 (0.60)	2.88 (0.52)

Superscript letters refer to pairwise comparisons (conducted for children with AD versus adolescents with AD, children with AD versus non-anxious children, and adolescents with AD versus non-anxious adolescents); means that share subscripts within rows are significantly different at $p < .05$

Effect sizes were calculated using omega squared (ω^2) for analyses of variance, with values of 0.01, 0.06 and 0.14 representing small, medium and large effect sizes, respectively (Kirk 1996), and Cohen's d for t -tests, with values of 0.02, 0.05 and 0.08 representing small, medium and large effect sizes, respectively (Cohen 1988).

Parental Behaviors across the Tasks

There was a significant effect of anxiety disorder ($V=0.11$, $F[4, 113]=3.39$, $p=.01$) and age group ($V=0.60$, $F[4, 113]=41.71$, $p<.001$) and a significant anxiety disorder by age group interaction ($V=0.12$, $F[4, 113]=3.87$, $p<.01$) on parental behavior across the tasks.

For parental observed anxiety, contrary to our hypotheses, the effect of anxiety disorder did not reach significance, ($F[1, 116]=2.74$, $p=.10$, $\omega^2=0.01$), however the effect of age group was significant ($F[1, 116]=105.14$, $p<.001$, $\omega^2=0.46$), with parents of children (mean=1.83, $SD=0.48$) displaying more anxiety than parents of adolescents (mean=1.19, $SD=0.16$). As can be seen in Figure 1a, the interaction between age and anxiety group was not statistically significant ($F[1, 116]=0.13$, $p=.72$, $\omega^2<.001$).

For parental intrusiveness, contrary to our first hypothesis, there was not a significant effect of anxiety disorder ($F[1, 116]=0.09$, $p=.76$, $\omega^2<.001$). However, consistent with our second hypothesis, there was a significant effect of age group ($F[1, 116]=46.31$, $p<.001$, $\omega^2=0.27$), with parents of children (mean=1.74, $SD=0.51$) being significantly more intrusive than parents of adolescents (mean=1.25, $SD=0.21$). The interaction between age and anxiety groups was also significant ($F[1, 116]=3.79$, $p=.05$, $\omega^2=0.02$). As shown in Figure 1b, parents of adolescents with an anxiety disorder showed significantly higher levels of intrusiveness, compared to parents of non-anxious adolescents ($t(58)=2.20$, $p=.04$, $d=0.58$), whereas a similar relationship between parental intrusiveness and anxiety disorder status was not observed among parents of children ($t(58)=-1.22$, $p=.24$, $d=0.33$). When child/adolescent observed anxiety/avoidance on the tasks was entered as a covariate, however, the age x anxiety disorder interaction effect was no longer significant ($F[1, 115]=2.83$, $p=.10$, $\omega^2=0.01$). The significant interaction effect was also no longer significant when the children and adolescents with a comorbid mood disorder were excluded from the analysis ($F[1, 110]=1.72$, $p=.19$, $\omega^2<.001$), or when child-reported (as opposed to parent-reported) SMFQ scores were entered as a covariate ($F[1, 112]=2.98$, $p=.09$, $\omega^2=0.01$).

Unexpectedly, for parental warm engagement behavior across the tasks there was not a significant effect of child/adolescent anxiety disorder, ($F[1, 116]=0.92$, $p=.34$, $\omega^2<.001$). However, in line with our second hypothesis, the effect of age group was significant ($F[1, 116]=9.71$, $p<.01$, $\omega^2=0.06$), and there was a significant effect of the age by anxiety

group interaction ($F[1, 116]=11.04$, $p=.001$, $\omega^2=0.07$). As shown in Figure 1c, parents of adolescents with an anxiety disorder showed significantly lower levels of warm engagement behavior, compared to parents of non-anxious adolescents ($t(58)=-3.44$, $p=.001$, $d=0.92$), whereas a similar relationship between parental intrusiveness and anxiety disorder status was not observed among parents of children ($t(58)=1.51$, $p=.14$, $d=0.39$).

Finally, for parental encouragement, contrary to expectation, there was not a significant effect of child/adolescent anxiety disorder ($F[1, 116]=1.64$, $p=.20$, $\omega^2=0.01$), age group ($F[1, 116]=1.71$, $p=.19$, $\omega^2=0.01$), or their interaction ($F[1, 116]=2.53$, $p=.12$, $\omega^2=0.01$) (Figure 1d). When controlling for observed child anxiety/avoidance, however, the interaction effect became significant, reflecting a pattern in which parents of children with anxiety disorders were significantly more encouraging than parents of non-anxious children ($t(58)=2.08$, $p=.05$, $d=0.54$), whereas a similar relationship between parental encouragement and anxiety disorder status was not observed among parents of adolescents ($t(58)=-0.21$, $p=.81$, $d=0.05$).

Discussion

Parental behaviors, most notably overcontrol, lack of warmth and expressed anxiety, have been implicated in models of the development and maintenance of anxiety disorders in children and young people (e.g., Creswell et al. 2011; Rapee et al. 2009). However, the parenting characteristics of children and young people at different stages of development have not been clearly characterized and consequently, are poorly understood. We examined the parenting behaviors of children with an anxiety disorder, non-anxious children, adolescents with an anxiety disorder and non-anxious adolescents.

As hypothesized and consistent with other studies (e.g., Hudson and Rapee 2001; Verhoeven et al. 2012), we found that parents of children showed significantly higher levels of intrusiveness than parents of adolescents, with an effect size in the large range. Parents of children were also observed to be significantly more anxious than parents of adolescents, with a large effect size, despite there being no significant differences in observed anxiety between the children and adolescents during the tasks. It is possible that parents of children perceive their offspring to be less competent than parents of adolescents in terms of the demands of the tasks (e.g., writing clearly and quickly, generating ideas, planning and organization), and their comparatively higher levels of anxiety and intrusive behavior are a reflection of this. In contrast, it is likely that parents of adolescents recognize that their involvement may be unnecessary given their adolescent's level of skills/competency to do the tasks, and second, that their

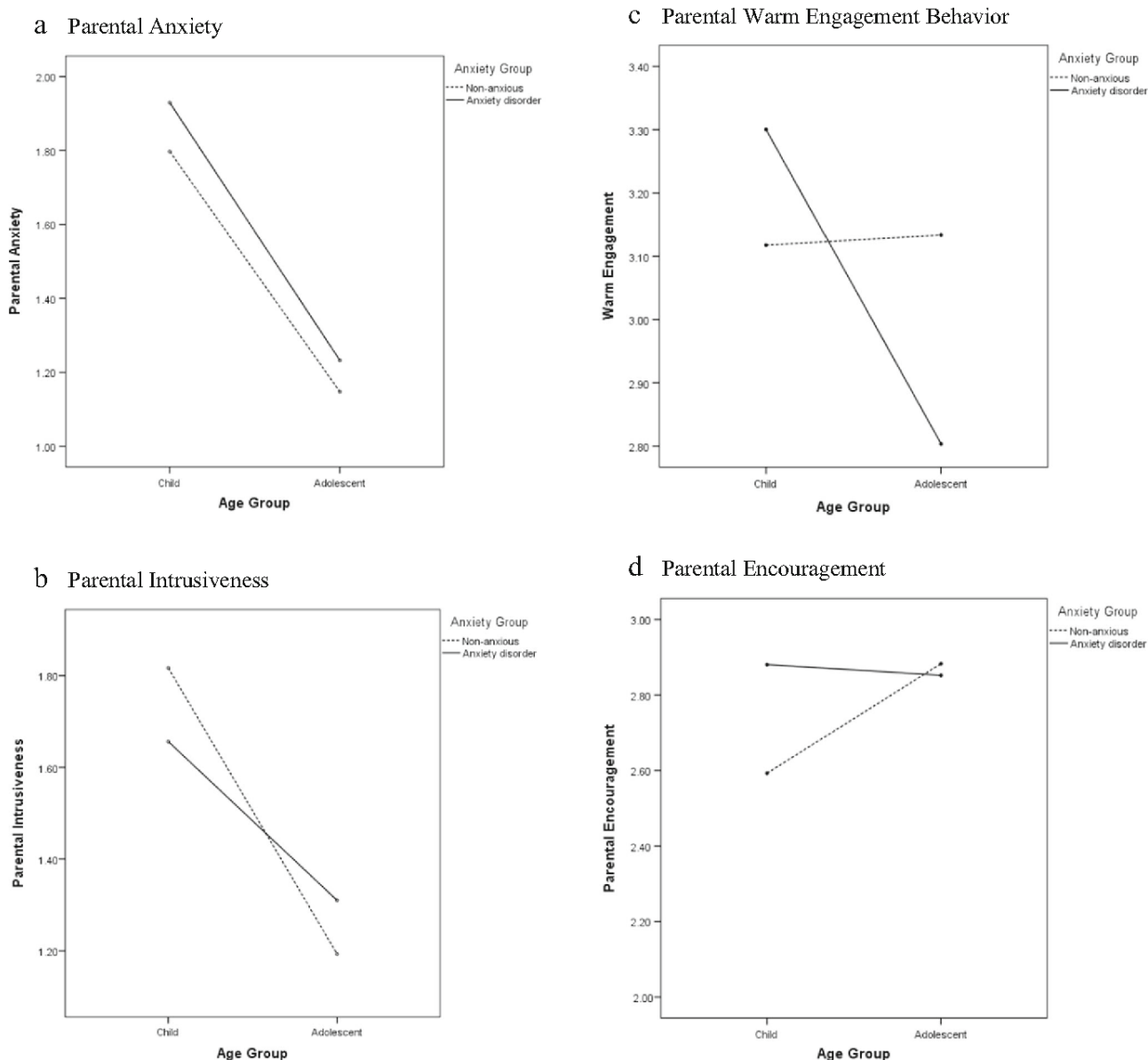


Fig 1 Interactions between anxiety disorder and age group for parental behaviours across tasks

involvement may be developmentally inappropriate and may be rejected by their son/daughter.

Consistent with our hypothesis, we also found that parents of children showed significantly higher levels of warm engagement than parents of adolescents, with a small effect. Although these findings differ to those of Hudson and Rapee (2001), this may reflect differences in coding schemes. Specifically, we separated out subdimensions of expressed anxiety, negative and controlling parental behaviors. Our finding that parental expressed anxiety was significantly higher, but parental warm engagement was significantly lower, in children than adolescents may not have been detected had these dimensions been combined together. The finding in relation to warm engagement is consistent with the suggestion

that middle childhood is characterized by parent–child relationships that are less challenging than in adolescence (Collins et al. 2002). Possible reasons for this include parenting responses having been influenced by greater levels of general negative affect among their adolescent offspring, less affection towards them as parents, parents no longer being idealized and adolescents and parents spending less time together (Eberly and Montemayor 1999; Larson et al. 2002; Larson and Richards 1991; Laursen et al. 1998; Steinberg and Silk 2002). In addition the parents of adolescents may have been more likely to attribute their offspring’s behaviors to their personality or factors under their control than parents of offspring in middle childhood (who are more likely to attribute children’s behavior to situational pressures or developmental

limitations in the child's knowledge) which lead to higher levels of negative affect in response to offspring behaviors (Dix et al. 1986). Notably, however, in our study there were no significant differences between children and adolescents in the specific dimension of parental encouragement.

Contrary to our hypotheses and the existing literature more broadly (see McLeod et al. 2007; van der Bruggen et al. 2008), we did not find an overall significant effect of child/adolescent anxiety status for any parental behaviors. The finding that child/adolescent anxiety status on its own is not associated with any parenting behaviors is of particular interest given that offspring with anxiety disorders were observed to be significantly more anxious and avoidant than non-anxious offspring during the tasks. This suggests that differences in parental behavior cannot be accounted for by the child/adolescent's anxiety status alone, and must be seen in the context of the child or adolescent's age. This is emphasized by our findings that associations between parenting behaviors and anxiety status were moderated by offspring age for parental intrusiveness and warm engagement (and for parental encouragement when controlling for child anxiety/avoidance). Specifically, parents of adolescents with anxiety disorders showed higher intrusiveness and lower warm engagement than parents of non-anxious adolescents, whereas the relationship between these parenting behaviors and anxiety status was not observed among parents of children. The difference in findings between parents of adolescents with an anxiety disorder and non-anxious adolescents is consistent with the existing literature that shows significant associations between adolescent anxiety and perceived parental intrusiveness and lack of warmth (see Waite et al. 2014). Both these parenting dimensions have been associated with psychological control, which may be a particularly relevant construct in relation to adolescence (Barber 1996; Silk et al. 2003). Interestingly, the existing literature shows more consistent findings for the association between adolescent anxiety and perceived parental intrusiveness than parental lack of warmth, whereas we found a large effect size for parental lack of warmth compared to a medium effect for intrusiveness. These differences, and the larger effect sizes found overall, are likely to reflect the use of observation, rather than self-report methodology, as well as the use of a clinical sample (McLeod et al. 2007). Notably in this study parenting behaviors did not differ significantly on the basis of anxiety status.

One possible explanation for the interaction effects might be that parental behavior is merely a reflection of greater anxiety during the tasks among the adolescents with anxiety disorders, however the significant interaction effect for parental warm engagement remained, even when controlling for observed child/adolescent anxiety and avoidance during the tasks and the fact that all groups of children/adolescents exhibited mild levels of observable anxiety across the tasks suggests that this explanation is unlikely. Instead, it appears more

likely that parents of adolescents with anxiety disorders, specifically, may step in and be more intrusive in order to protect their child from distress or failure. In addition, the significantly lower level of warm engagement shown by parents of adolescents with an anxiety disorder, compared to those without, may reflect the nature of the parent-adolescent relationship when placed under specific stressors; or perhaps the relationship more broadly, if the adolescent's anxiety and associated difficulties have resulted in higher levels of frustration and conflict within the family. The lack of association between parental encouragement, which maps most closely onto the construct of autonomy promotion, and anxiety status for parents of adolescents is consistent with research suggesting that psychological control and autonomy promotion are best conceptualized as distinct constructs (Silk et al. 2003) and underlines the importance of disaggregating parenting dimensions that have previously been grouped together.

It is of interest that in this study, the differences between the two child groups only reached significance for parental encouragement. In contrast to the findings with adolescents, parents of children with anxiety disorders appear to show a general pattern of responding to children with anxiety disorders with warmth and (non-intrusive) encouragement. The fact that parents are typically responding in the ways advocated in family based treatments may help explain why family treatments focused specifically on changing parenting behaviors do not necessarily add significant benefits in terms of treatment outcomes for children with anxiety disorders in the study age range (e.g., Reynolds et al. 2012). This is not to say that parents should not be involved in treatment. There is a good deal of evidence demonstrating the effectiveness of parent-focused approaches, especially among younger children (e.g., Cartwright-Hatton et al. 2011; Donovan and March 2014; Waters et al. 2009). However, it may be that a focus on specific parenting behaviors, such as intrusiveness, is unwarranted among children in middle childhood. Having said this, it is important to note that our findings with children are not consistent with a recent report that found significant associations between maternal reported child anxiety symptoms and observations of maternal intrusiveness in children in grades 1, 3 and 5 (6–11 years) (Cooper-Vince et al. 2014). In that study, the association between maternal intrusiveness and child anxiety symptoms was moderated by family financial means; whether our failure to replicate this finding reflects the relatively high economic status of our sample, the inclusion of a clinical (rather than community) population, or differences in the measurement of child anxiety remain unclear. Nonetheless, what is most clear from these findings is the difficulty in drawing conclusions from studies which assess parenting behaviors in the context of offspring anxiety across large age ranges and our findings may, to some extent, explain inconsistent findings across studies (e.g., McLeod et al. 2007).

Limitations to the study should be noted. The children with anxiety disorders were selected to match the adolescents with anxiety disorders on the basis of their primary anxiety disorder diagnosis and comorbid mood and behavior disorders, however, we still cannot be certain that these results cannot be accounted for by other overlapping symptoms, rather than anxiety. As a result of matching the groups for disorders, there are fewer children with a primary diagnosis of separation anxiety disorder than would typically be seen in a general clinic population (Waite and Creswell 2014). We included a range of tasks in order to present scenarios likely to create some mild stress for children and adolescents with a range of anxiety disorders, however it is possible that there may be anxiety-disorder specific associations with particular parenting behaviors in particular contexts (e.g. Wood 2006). We chose the tasks to be mildly stressful and they did invoke mild anxiety for all groups of participants; nevertheless, they may have been differentially demanding for children and adolescents at different developmental levels. Furthermore, the findings may not generalize to situations that invoke greater levels of fear. Indeed, there is evidence to suggest that parental intrusiveness and overprotection are more likely to occur in the context of negative child emotions (e.g., Hudson et al. 2008) and therefore it is possible that our findings would differ with higher levels of child/adolescent negative affect (but for ethical reasons, this would be difficult to test experimentally). Similarly, the artificial nature of the laboratory may mean that the behavior of both parents and their offspring is not generalizable to everyday life and some parental behaviors, such as promotion of avoidance and passivity, may occur in everyday life but occur less frequently in laboratory-based tasks. The different parenting constructs in this study were informed by the wider literature (McLeod et al. 2007; van der Bruggen et al. 2008), however, they may not have captured all relevant aspects of parental over-control and therefore in future research, greater alignment between distinct theoretical constructs and coded behaviors is likely to be beneficial. The cross-sectional nature of this study means that the direction of effects cannot be established and further experimental research is necessary to clarify whether parental behaviors maintain or are simply a response to offspring anxiety disorders. This study considered age within two categories, on the basis that childhood and adolescence can be seen as distinct, developmental periods (Erikson 1968); of course, changes are unlikely to occur in such a discrete way, and future studies should aim to look at still narrower age bands. In addition, families with young children (<7 years) were not included in the present study, and it is during this developmental period that many child anxiety disorders begin, and as such, parenting behaviors may be of particular relevance. Finally, participants were from predominantly White British, relatively high socio-economic backgrounds, and parents were mainly mothers. Future research with more diverse backgrounds,

examining parental gender is clearly required, as is identifying other moderating factors, such as the role of child/adolescent gender.

In summary, the findings from the current study suggest that theoretical accounts of the role of parental behaviors in anxiety disorders in children and adolescents should distinguish between these different developmental periods. Although the findings would seem to suggest that a focus on increasing parental warmth and engagement and decreasing parental intrusiveness may be indicated for adolescents, the cross-sectional design of the study means that we cannot be clear about the nature of the relationship between parenting and adolescent anxiety. If the relationship is bi-directional, or if negative parenting behavior results from adolescent symptomatology, as might be suggested by recent prospective studies (Hale et al. 2013; Van Zalk and Kerr 2011; Wijsbroek et al. 2011), then treating the adolescent's anxiety disorder may actually have a positive effect on parenting behaviors without a specific parenting intervention. Further experimental research to establish causality would be required before committing additional resources to targeting parenting factors within treatment.

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Conflict of Interest The authors declare that they have no potential or competing conflicts of interest.

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References

- Alkozei, A., Creswell, C., Cooper, P., & Allen, J. J. B. (2015). Autonomic arousal in childhood anxiety disorders: associations with state anxiety and social anxiety disorder. *Journal of Affective Disorders*, *175*, 25–33. doi:10.1016/j.jad.2014.11.056.
- Angold, A., Costello, E. J., Messer, S. C., Pickles, A., Winder, F., & Silver, D. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *International Journal of Methods in Psychiatric Research*, *5*, 237–249.
- Askew, C., & Field, A. P. (2007). Vicarious learning and the development of fears during childhood. *Behaviour Research and Therapy*, *45*, 2616–2627. doi:10.1016/j.brat.2007.06.008.
- Barber, B. K. (1996). Parental psychological control: revisiting a neglected construct. *Child Development*, *67*, 3296–3319.

- Barrett, P. M., Shortt, A., & Healy, L. (2002). Do parent and child behaviours differentiate families whose children have obsessive-compulsive disorder from other clinic and non-clinic families? *Journal of Child Psychology and Psychiatry*, *43*, 597–607. doi:10.1111/1469-7610.00049.
- Cartwright-Hatton, S., McNally, D., Field, A. P., Rust, S., Laskey, B., Dixon, C., & Woodham, A. (2011). A new parenting-based group intervention for young anxious children: results of a randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *50*, 242–251. doi:10.1016/j.jaac.2010.12.015.
- Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: the role of control in early environment. *Psychology Bulletin*, *124*, 3–21.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York: Lawrence Erlbaum Associates.
- Collins, W. A., Madsen, S. D., & Susman-Stillman, A. (2002). Parenting during middle childhood. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (Vol. 1, pp. 73–101). London: Lawrence Erlbaum Associates.
- Cooper-Vince, C. E., Pincus, D. B., & Comer, J. S. (2014). Maternal intrusiveness, family financial means, and anxiety across childhood in a large multiphase sample of community youth. *Journal of Abnormal Child Psychology*, *42*, 429–438. doi:10.1007/s10802-013-9790-4.
- Creswell, C., Murray, L., Stacey, J., & Cooper, P. J. (2011). Parenting and child anxiety. In W. K. Silverman & A. P. Field (Eds.), *Anxiety disorders in children and adolescents* (2nd ed., pp. 299–322). Cambridge: Cambridge University Press.
- Creswell, C., Apetroaia, A., Murray, L., & Cooper, P. J. (2013). Cognitive, affective, and behavioral characteristics of mothers with anxiety disorders in the context of child anxiety disorder. *Journal of Abnormal Psychology*, *122*, 26–38. doi:10.1037/a0029516.
- De Rosnay, M., Cooper, P. J., Tsigaras, N., & Murray, L. (2006). Transmission of social anxiety from mother to infant: an experimental study using a social referencing paradigm. *Behaviour Research and Therapy*, *44*, 1165–1175.
- Dix, T., Ruble, D. N., Grusec, J. E., & Nixon, S. (1986). Social cognition in parents: inferential and affective reactions to children of three ages. *Child Development*, *57*, 879–894.
- Donovan, C. L., & March, S. (2014). Online CBT for preschool anxiety disorders: a randomised control trial. *Behaviour Research and Therapy*, *58*, 24–35. doi:10.1016/j.brat.2014.05.001.
- Eberly, M. B., & Montemayor, R. (1999). Adolescent affection and helpfulness toward parents: a two-year follow-up. *Journal of Early Adolescence*, *19*, 226–248.
- Eccles, J. S., & Harold, R. D. (1993). Parent-school involvement during the early adolescent years. *Teacher College Record*, *94*, 568–587.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.
- Essau, C. A., & Gabbidon, J. (2013). Epidemiology, comorbidity and mental health service utilization. In C. A. Essau & T. H. Ollendick (Eds.), *The Wiley-Blackwell handbook of the treatment of childhood and adolescent anxiety* (1st ed.). Chichester: Wiley-Blackwell.
- Gar, N. S., & Hudson, J. L. (2008). An examination of the interactions between mothers and children with anxiety disorders. *Behaviour Research and Therapy*, *46*, 1266–1274. doi:10.1016/j.brat.2008.08.006.
- Gerull, F. C., & Rapee, R. M. (2002). Mother knows best: effects of maternal modelling on the acquisition of fear and avoidance behaviour in toddlers. *Behavior Research and Therapy*, *40*, 279–287.
- Goodman, R. (1997). The strengths and difficulties questionnaire: a research note. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *38*, 581–586. doi:10.1111/j.1469-7610.1997.tb01545.x.
- Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 1337–1345. doi:10.1097/00004583-200111000-00015.
- Grills, A. E., & Ollendick, T. H. (2003). Multiple informant agreement and the anxiety disorders interview schedule for parents and children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*, 30–40. doi:10.1097/00004583-200301000-00008.
- Grüner, K., Muris, P., & Merckelbach, H. (1999). The relationship between anxious rearing behaviours and anxiety disorders symptomatology in normal children. *Journal of Behavior Therapy and Experimental Psychiatry*, *30*, 27–35.
- Hale, W. W., Klimstra, T. A., Branje, S. J. T., Wijsbroek, S. A. M., & Meeus, W. H. J. (2013). Is adolescent generalized anxiety disorder a magnet for negative parental interpersonal behaviors? *Depression and Anxiety*, *30*, 849–856. doi:10.1002/da.22065.
- Hirshfeld, D. R., Biederman, J., Brody, L., Faraone, S. V., & Rosenbaum, J. F. (1997). Expressed emotion toward children with behavioral inhibition: associations with maternal anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 910–917.
- Hudson, J. L., & Rapee, R. M. (2001). Parent-child interactions and anxiety disorders: an observational study. *Behaviour Research and Therapy*, *39*, 1411–1427. doi:10.1016/s0005-7967(00)00107-8.
- Hudson, J. L., Comer, J. S., & Kendall, P. C. (2008). Parental responses to positive and negative emotions in anxious and nonanxious children. *Journal of Clinical Child and Adolescent Psychology*, *37*, 303–313. doi:10.1080/15374410801955839.
- Kirk, R. E. (1996). Practical significance: a concept whose time has come. *Educational and Psychological Measurement*, *56*, 746–759. doi:10.1177/0013164496056005002.
- Larson, R. W., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: changing developmental contexts. *Child Development*, *62*, 284–300.
- Larson, R. W., Moneta, G., Richards, M. H., & Wilson, S. (2002). Continuity, stability and changes in daily emotional experience across adolescence. *Child Development*, *73*, 1151–1165.
- Last, C. G., Hansen, C., & Franco, N. (1997). Anxious children in adulthood: a prospective study of adjustment. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 645–652.
- Laursen, B., Coy, K. C., & Collins, W. A. (1998). Reconsidering changes in parent-child conflict during adolescence: a meta-analysis. *Child Development*, *69*, 817–832.
- McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: a meta-analysis. *Clinical Psychology Review*, *27*, 155–172.
- Muris, P., Bögels, S. M., Meesters, C., van der Kamp, N., & van Oosten, A. (1996). Parental rearing practices, fearfulness, and problem behaviour in clinically referred children. *Personality and Individual Differences*, *21*, 813–818. doi:10.1016/0191-8869(96)00119-5.
- Murray, L., Lau, P. Y., Artech, A., Creswell, C., Russ, S., Della Zoppa, L., & Cooper, P. (2012). Parenting by anxious mothers: effects of disorder subtype, context, and child characteristics. *Journal of Child Psychology and Psychiatry*, *53*(2), 188–196. doi:10.1111/j.1469-7610.2011.02473.x.
- Nauta, M. H., Scholing, A., Rapee, R. M., Abbott, M., Spence, S. H., & Waters, A. (2004). A parent-report measure of children's anxiety: psychometric properties and comparison with child-report in a clinic and normal sample. *Behaviour Research and Therapy*, *42*, 813–839. doi:10.1016/S0005-7967(03)00200-6.
- Office for National Statistics (2005). SOC2020 volume 3 national statistics socio-economic classification (NS-SEC) user manual.
- Pine, D., Cohen, P., Gurley, D., Brook, J., & Ma, Y. (1998). The risk for early adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Archives of General Psychiatry*, *55*, 56–64.
- Rachman, S. (1977). The conditioning theory of fear acquisition: a critical examination. *Behaviour Research and Therapy*, *15*, 375–387.

- Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review, 17*, 47–67.
- Rapee, R. M., Schniering, C. A., & Hudson, J. L. (2009). Anxiety disorders during childhood and adolescence: origins and treatment. *Annual Review of Clinical Psychology, 5*, 311–341. doi:10.1146/annurev.clinpsy.032408.153628.
- Reynolds, S., Wilson, C., Austin, J., & Hooper, L. (2012). Effects of psychotherapy for anxiety in children and adolescents: a meta-analytic review. *Clinical Psychology Review, 32*, 251–262.
- Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: a meta-analysis. *Psychological Bulletin, 116*, 55–74. doi:10.1037/0033-2909.116.1.55.
- Schwartz, O. S., Dudgeon, P., Sheeber, L. B., Yap, M. B. H., Simmons, J. G., & Allen, N. B. (2012). Parental behaviors during family interactions predict changes in depression and anxiety symptoms during adolescence. *Journal of Abnormal Child Psychology, 40*, 59–71.
- Silk, J. S., Morris, A. S., Kanaya, T., & Steinberg, L. (2003). Psychological control and autonomy granting: opposite ends of a continuum or distinct constructs? *Journal of Research on Adolescence, 13*, 113–128. doi:10.1111/1532-7795.1301004.
- Silverman, W. K., & Albano, A. M. (1996). *The anxiety disorders interview schedule for DSM-IV – child and parent versions*. San Antonio: Psychological Corporation.
- Silverman, W. K., Saavedra, L. M., & Pina, A. A. (2001). Test-retest reliability of anxiety symptoms and diagnoses with the anxiety disorders interview schedule for DSM-IV: child and parent versions. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 937–944. doi:10.1097/00004583-200108000-00016.
- Siqueland, L., Kendall, P. C., & Steinberg, L. (1996). Anxiety in children: perceived family environments and observed family interaction. *Journal of Clinical Child Psychology, 25*, 225–237.
- Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy, 36*, 545–566.
- Spence, S. H., Barrett, P. M., & Turner, C. M. (2003). Psychometric properties of the spence children's anxiety scale with young adolescents. *Journal of Anxiety Disorders, 17*, 605–625.
- Steinberg, L. (2001). We know some things: parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1–19.
- Steinberg, L., & Silk, J. S. (2002). Parenting adolescents. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (2nd ed.). London: Lawrence Erlbaum Associates.
- van Brakel, M. L., Muris, P., Bögels, S. M., & Thomassen, C. (2006). A multifactorial model for the etiology of anxiety in non-clinical adolescents: main and interactive effects of behavioral inhibition, attachment and parental rearing. *Journal of Child and Family Studies, 15*, 569–579.
- van der Bruggen, C. O., Stams, G. J. J. M., & Bögels, S. M. (2008). Research review: the relation between child and parent anxiety and parental control: a meta-analytic review. *Child Psychology and Psychiatry, 49*, 1257–1269.
- Van Zalk, N., & Kerr, M. (2011). Shy adolescents' perceptions of parents' psychological control and emotional warmth: examining bidirectional links. *Merrill-Palmer Quarterly Journal of Developmental Psychology, 57*, 375–401.
- Verhoeven, M., Bögels, S. M., & van der Bruggen, C. C. (2012). Unique roles of mothering and fathering in child anxiety: moderation by child's age and gender. *Journal of Child and Family Studies, 21*, 331–343.
- Waite, P., & Creswell, C. (2014). Children and adolescents referred for treatment of anxiety disorders: differences in clinical characteristics. *Journal of Affective Disorders, 167*, 326–332. doi:10.1016/j.jad.2014.06.028.
- Waite, P., Whittington, L., & Creswell, C. (2014). Parent-child interactions and adolescent anxiety: a systematic review. *Psychopathology Review, 1*, 113–138. doi:10.5127/pr.033213.
- Waters, A. M., Ford, L. A., Wharton, T. A., & Cobham, V. E. (2009). Cognitive-behavioural therapy for young children with anxiety disorders: comparison of a child+parent condition versus a parent only condition. *Behaviour Research and Therapy, 47*, 654–662. doi:10.1016/j.brat.2009.04.008.
- Waters, A. M., Zimmer-Gembeck, M. J., & Farrell, L. J. (2012). The relationships of child and parent factors with children's anxiety symptoms: parental anxious rearing as a mediator. *Journal of Anxiety Disorders, 26*, 737–745.
- Wijsbroek, S. A. M., Hale, W. W., Raaijmakers, Q. A. W., & Meeus, W. H. J. (2011). The direction of effects between perceived parental behavioral control and psychological control and adolescents' self-reported GAD and SAD symptoms. *European Child & Adolescent Psychiatry, 20*, 361–371.
- Wolfadt, U., Hempel, S., & Miles, J. (2003). Perceived parenting styles, depersonalisation, anxiety and coping behaviour in adolescents. *Personality and Individual Differences, 34*, 521–532. doi:10.1016/s0191-8869(02)00092-2.
- Wood, J. J. (2006). Parental intrusiveness and children's separation anxiety in a clinical sample. *Child Psychiatry and Human Development, 37*, 73–87.
- Wood, J. J., McLeod, B. D., Sigman, M., Hwang, W., & Chu, B. C. (2003). Parenting and childhood anxiety: theory, empirical findings, and future directions. *Journal of Child Psychology and Psychiatry, 44*, 134–151.

Chapter 5 Supplementary Data for Paper 3: Further Analyses with a Modified Anxious Child Sample

Rationale and aim

In Paper 3, one of the limitations identified was that the children with anxiety disorders were selected to match the adolescents with anxiety disorders on the basis of their primary anxiety disorder diagnosis and comorbid mood and behaviour disorders. As a result of matching the groups for disorders, there were fewer children with a primary diagnosis of separation anxiety disorder than would typically be seen in a general clinic population. Consequently, further analyses have been conducted with a modified anxious child sample to explore whether the same pattern of findings would be seen with a sample that better reflected what would typically be seen in routine clinical practice.

Method

As before, 30 children aged 7-10 years, who had been diagnosed with an anxiety disorder and had completed the same assessment with their mothers as part of a wider study, were selected. This time, however, they were selected to be more representative of the children who would typically present to services for treatment of an anxiety disorder, in accordance with Waite and Creswell (2014), rather than being matched to the anxious adolescent group on the basis of primary anxiety disorder. Twelve children were removed from the sample (5 with a primary diagnosis of panic disorder with/without agoraphobia; 2 with social anxiety disorder and 5 with specific phobias), and replaced with

children with primary diagnoses of separation anxiety disorder ($n = 7$), generalized anxiety disorder ($n = 2$) and anxiety disorder not otherwise specified ($n=3$). The overall sample consisted of the following primary anxiety disorder diagnoses: generalized anxiety disorder ($n = 9$, 30.0%), separation anxiety disorder ($n = 7$, 23.3%), social anxiety disorder ($n = 6$, 20.0%), specific phobia ($n = 4$, 13.3%), anxiety disorder not otherwise specified ($n=3$, 10.0%) and agoraphobia without panic disorder ($n=1$, 3.3%). In terms of comorbid mood disorders, three (10%) had been diagnosed with dysthymic disorder and two (6.7%) with major depressive disorder. For comorbid behaviour disorders, four (13.3%) met criteria for a diagnosis of oppositional defiant disorder.

Table 1 provides demographic information for the modified anxious child sample, alongside the original anxious child sample. Table 2 provides demographic information for the modified anxious child sample, in comparison to the other three groups. Differences between the groups were consistent with the original analyses, with two exceptions. First, on the SCAS-c, the difference between the anxious and non-anxious groups reached significance using the modified anxious child sample ($t(54)=2.19$, $p=.03$). Second, the difference between the anxious children and anxious adolescents in terms of number of comorbid anxiety disorders was no longer significant (children: mean = 1.30 (SD = 1.29); adolescents: mean = 0.77 (SD = .82); $t(58)=-1.91$, $p=.06$).

TABLE 1. Sample characteristics for the original anxious child sample and the modified anxious child sample

	Anxious children Original sample (n=30)	Anxious children Modified sample (n=30)
Child/adolescent gender (boys: girls)	14:16	14:16
Age in months (mean, <i>SD</i> , range)	112.20 (10.49), 94-130	112.73 (10.91), 93-129
Ethnicity (% White British)	93%	90%
Family SES (% “higher” or “professional”)	67%	70%
Parent gender (% female)	100%	100%
SCAS-c total (mean, <i>SD</i>)	36.20 (19.03)	37.50 (17.47)
SCAS-p total (mean, <i>SD</i>)	36.03 (14.75)	38.70 (18.85)
SMFQ-c total (mean, <i>SD</i>)	6.70 (4.50)	6.55 (4.27)
SMFQ-p total (mean, <i>SD</i>)	6.60 (4.97)	7.40 (5.47)
SDQ-p conduct (mean, <i>SD</i>)	2.10 (1.81)	2.27 (1.55)

TABLE 2. Sample characteristics

	Anxious children Modified sample (n=30)	Non-anxious children (n=30)	Anxious adolescents (n=30)	Non-anxious adolescents (n=30)	Statistics
Child/adolescent gender (boys: girls)	14:16	20:10	14:16	16:14	$\chi^2(3)=3.21, p=.36$
Age in months (mean, <i>SD</i> , range)	112.73 (10.91), 93-129	110.60 (9.77), 96-131	181.50 (13.48), 158-198	183.03 (13.79), 161-205	$F(3, 116)=340.31, p<.001$
Ethnicity (% White British)	90%	93%	93%	90%	$\chi^2(3)=0.43, p=.93$
Family SES (% “higher” or “professional”)	70%	73%	67% ^a	97% ^a	$\chi^2(3)=8.90, p=.03$
Parent gender (% female)	100%	100%	93%	90%	$\chi^2(3)=4.57, p=.21$
SCAS-c total (mean, <i>SD</i>)	37.50 (17.47) ^a	27.89 (10.74) ^a	39.23 (17.62) ^b	10.97 (5.54) ^b	$F(3, 114)=26.25, p<.001$

SCAS-p total (mean, <i>SD</i>)	38.70 (18.85) ^a	13.97 (5.86) ^a	31.77 (18.52) ^b	6.87 (3.15) ^b	$F(3, 116)=35.82, p<.001$
SMFQ-c total (mean, <i>SD</i>)	6.55 (4.27)	4.79 (3.20)	7.34 (5.77) ^b	2.17 (2.41) ^b	$F(3, 112)=9.24, p<.001$
SMFQ-p total (mean, <i>SD</i>)	7.40 (5.47) ^a	1.83 (2.28) ^a	8.63 (7.89) ^b	1.43 (1.92) ^b	$F(3, 115)=16.22, p<.001$
SDQ-p conduct (mean, <i>SD</i>)	2.27 (1.55) ^a	0.90 (.92) ^a	1.57 (1.65) ^b	0.69 (1.14) ^b	$F(3, 115)=8.27, p=.001$

Note. Where self-report data was missing, this was less than 10% of the dataset. Superscript letters refer to pairwise comparisons (conducted for children with AD versus adolescents with AD, children with AD versus non-anxious children, and adolescents with AD versus non-anxious adolescents); means that share subscripts within rows are significantly different at $p<.05$.

Results

Using the modified anxious child sample, the pattern of results was identical to the original anxious child sample when not controlling for child behaviour or mood disorder/symptoms. Mean scores for the original sample and the modified sample are presented in Tables 3 and 4.

When child/adolescent observed anxiety/avoidance on the tasks was entered as a covariate, the pattern of results did not change using the modified sample (whereas with the original sample, the inclusion of this covariate led the age by anxiety disorder interaction effect to become non-significant for parental intrusiveness and significant for parental encouragement). Similarly, when child-reported total SMFQ scores was entered as a covariate, the interaction effect for parental intrusiveness remained significant (whereas with the original sample, it became non-significant). When the children and adolescents with a comorbid mood disorder were excluded from the analysis, the results were consistent with those of the original sample.

Discussion

These results suggest that the findings presented in the published paper are robust and generalizable to a sample of children who have primary anxiety disorders that are more typical of those seen in this age group within routine clinical settings.

TABLE 3. Behaviours across all tasks for the original anxious child sample and modified anxious child sample

		Anxious children	Anxious children
		Original sample (n=30)	Modified sample (n=30)
Child/adolescent	Anxiety/avoidance (mean, <i>SD</i>)	1.50 (.32)	1.45 (.20)
Parent	Anxiety (mean, <i>SD</i>)	1.93 (.56)	1.88 (.40)
	Intrusiveness (mean, <i>SD</i>)	1.65 (.57)	1.63 (.44)
	Warm engagement behaviour (mean, <i>SD</i>)	3.30 (.44)	3.20 (.48)
	Encouragement (mean, <i>SD</i>)	2.88 (.53)	2.76 (.60)

TABLE 4. Group differences in child/adolescent and parent behaviours across all tasks using the modified anxious child sample

		Anxious children Modified sample (n=30)	Non-anxious children (n=30)	Anxious adolescents (n=30)	Non-anxious adolescents (n=30)
Child/adolescent	Anxiety/avoidance (mean, <i>SD</i>)	1.45 (.20)	1.45 (.24)	1.64 (.39) ^a	1.23 (.20) ^a
Parent	Anxiety (mean, <i>SD</i>)	1.88 (.40) ^a	1.80 (.39)	1.23 (.16) ^{a b}	1.15 (.15) ^b
	Intrusiveness (mean, <i>SD</i>)	1.63 (.44) ^a	1.82 (.44)	1.31 (.22) ^{a b}	1.19 (.19) ^b
	Warm engagement behaviour (mean, <i>SD</i>)	3.20 (.48) ^a	3.12 (.49)	2.80 (.36) ^{a b}	3.13 (.38) ^b
	Encouragement (mean, <i>SD</i>)	2.76 (.60)	2.59 (.54)	2.85 (.60)	2.88 (.52)

Note. Superscript letters refer to pairwise comparisons (conducted for children with AD versus adolescents with AD, children with AD versus non-anxious children, and adolescents with AD versus non-anxious adolescents); means that share subscripts within rows are significantly different at $p < .05$.

**Chapter 6 Paper 4: Interpretation of Ambiguity: Differences between
Children and Adolescents With and Without an Anxiety Disorder**

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Waite, P., Codd, J., & Creswell, C. (in press). An investigation of interpretation biases:

Differences between children and adolescents with and without an anxiety disorder.

Interpretation of ambiguity: Differences between children and adolescents with and
without an anxiety disorder

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Abstract

Background: Theory and treatment of anxiety disorders in young people are commonly based on the premise that interpretation biases found in anxious adults are also found in children and adolescents. Although there is some evidence that this may be the case, studies have not typically taken age into account, which is surprising given the normative changes in cognition that occur throughout childhood. The aim of the current study was to identify whether associations between anxiety disorder status and interpretation biases differed in children and adolescents.

Methods: The responses of children (7-10 years) and adolescents (13-16 years) with and without anxiety disorders (n = 120) were compared on an ambiguous scenarios task.

Results: Children and adolescents with an anxiety disorder showed significantly higher levels of threat interpretation and avoidant strategies than non-anxious children and adolescents. However, age significantly moderated the effect of anxiety disorder status on interpretation of ambiguity, in that adolescents with anxiety disorders showed significantly higher levels of threat interpretation and associated negative emotion than non-anxious adolescents, but a similar relationship was not observed among children.

Conclusions: The findings suggest that theoretical accounts of interpretation biases in anxiety disorders in children and adolescents should distinguish between different developmental periods. For both ages, treatment that targets behavioural avoidance appears warranted. However, while adolescents are likely to benefit from treatment that addresses interpretation biases, there may be limited benefit for children under the age of ten.

Anxiety disorders are highly prevalent among children and adolescents and have far-reaching negative consequences (Essau & Gabbidon, 2013). A central tenet of cognitive theories of anxiety in adults is the idea that anxious individuals are inclined to excessively infer future threat/danger in their environment and to underestimate their ability to cope, and this leads to physiological arousal and behavioural avoidance, thus maintaining anxiety (Beck & Clark, 1997). This is supported by studies demonstrating that adults with elevated anxiety show attentional biases towards threatening stimuli (MacLeod, Mathews, & Tata, 1986; Mogg, Mathews, & Eysenck, 1992) and a tendency to interpret ambiguous information in a disproportionately threatening way (Amir, Beard, & Bower, 2005; Mathews & Mackintosh, 2000). Accordingly, Cognitive Behaviour Therapy (CBT) targets these cognitive processes so that, for example, the individual is able to challenge his or her biased cognitions to think in a more benign way. This approach has been extended to young people with anxiety disorders, based on the assumption that the information-processing biases found in adults are also found in children and adolescents.

Over the past 20 years, evidence has accumulated to suggest that there is an association between anxiety diagnoses or symptoms and threat-related interpretation biases in children and young people across relatively broad age ranges (ranging from 7 to 18 years) (e.g., Barrett, Rapee, Dadds, & Ryan, 1996; Creswell, Schneiring, & Rapee, 2005). There have been some inconsistencies in findings, however, particularly among studies with children at the younger end of this age range (7-12 years). While some studies have continued to find significant group differences around interpretation of threat/danger on tasks involving ambiguous scenarios (e.g., Alkozei, Cooper, & Creswell, 2014; Waters, Wharton, Zimmer-Gembeck, & Craske, 2008), other studies have failed to find differences

in judgments of threat between children with anxiety disorders and non-anxious children of the same age on similar tasks (Creswell, Murray, & Cooper, 2014; Waters, Craske, Bergman, & Treanor, 2008) or a homographs task (Waters, Wharton, et al., 2008).

Theoretical accounts of anxiety suggest that once threat is detected in the environment, dedicated neural circuitry then increases physiological arousal and inhibits ongoing behaviour to deal with the threat (Gray & McNaughton, 2003; Öhman & Mineka, 2001). Physiological arousal increases as a result of the relatively strong link between the cognitive representations of emotional states and mood congruent events. Behavioural avoidance of anxiety-producing stimuli then maintains the anxiety because it interferes with the individual's ability to experience a threatening or emotional event in a more benign way (Foa & Kozak, 1986; Mowrer, 1960). As such, as well as examining whether children and young people make more threatening interpretations of ambiguous stimuli, studies have investigated levels of associated negative emotion, perceptions of coping and choice of behavioural strategies. For example, Waters, Craske, et al. (2008) found significant associations between anxiety disorder status and anticipated negative emotion in children aged 7-12 years. In addition, three studies have found that children and young people with anxiety disorders are significantly more likely than non-anxious children to underestimate their ability to control or influence the outcome of the situation (Bögels & Zigterman, 2000; Creswell et al., 2014; Waters, Craske, et al., 2008), although it is of note that Creswell et al. (2014) only found a significant difference amongst those aged 10-12 years and not those aged 7-9 years. Finally, there are also mixed findings in relation to predicted behavioural responses to potentially threatening situations. Whereas Chorpita et al. (1996) found a significant association between anxiety symptoms and avoidant plans of

action amongst children aged 9-13 years of age, neither Barrett, Rapee, Dadds, et al. (1996) nor Bögels, Snieder, and Kindt (2003) found a significant association among children, aged 7-14 years and 7-12 years respectively. All three studies used ambiguous scenarios and therefore differences in findings may relate to participant characteristics, with participants in Chorpita et al.'s study being older (mean age of 11.33 years) than participants in the other two studies (mean ages ranged from 9.0 to 10.2 years). However, the small sample size in Chorpita et al.'s study (anxious group n=4; non-anxious group n=8) limits interpretation of the findings.

As is evident from the studies described above, the most widely used measure of interpretation bias is an ambiguous story paradigm, involving the verbal presentation of hypothetical situations that could be interpreted as threatening or non-threatening. This paradigm was originally used with adults (Butler & Mathews, 1983), and then subsequently modified for use with children (Barrett, Rapee, Dadds, et al., 1996; Chorpita et al., 1996) as young as five years of age (Creswell et al., 2011). Studies differ in the content of the scenarios described (e.g. social and physical threat, threat relating to different anxiety disorders, inclusion of information about physical symptoms or degree of ambiguity or threat), length of scenarios (ranging from one sentence to a number of sentences), the number of scenarios (ranging from three to twelve), the wording of the questions and types of response (e.g. free or forced choice). However, when considering these methodological differences, no clear patterns emerge that explain the inconsistent findings between studies, suggesting that other factors (such as participant age) may be of greater relevance.

Although studies have often included both children and adolescents across broad age ranges (Bögels & Zigterman, 2000; Taghavi et al., 2000), the extensive literature on

cognitive development suggests that there are key differences between children and adolescents. The adolescent years are characterized by the maturation of cognitive and emotional abilities (Yurgelun-Todd, 2007), in line with prefrontal neurological development (Gogtay et al., 2004). Developmental theories emphasize greater capacity for abstract, hypothetical reasoning in adolescents compared to children (Piaget & Inhelder, 1969), and increasing attentional capacity, processing speed, decision-making, ability to selectively attend to information, regulate emotion, inhibit responses and control behaviour that continues throughout the adolescent period (Adleman et al., 2002; Anderson, Anderson, Northam, Jacobs, & Catroppa, 2001; Hooper, Luciana, Conklin, & Yarger, 2004; Luna, Garver, Urban, Lazar, & Sweeney, 2004). There is also some suggestion that there may be differences in the nature of the association between thinking styles and affect between childhood and adolescence. Specifically there is evidence that in middle childhood, events rather than explanatory style, predict high levels of negative affect, whereas by early adolescence, explanatory style on its own or in conjunction with life events becomes a significant predictor of affect (Nolen-Hoeksema et al., 1992). This suggests that cognitive accounts of disordered affect may begin to apply in adolescence, rather than in childhood.

Given the normative changes to cognition throughout childhood and adolescence, it is striking that age has not typically been taken into account in studies of interpretation bias and anxiety. Only one study has examined associations between interpretation biases and anxiety in adolescents specifically, finding that adolescents from a community population aged 11-16 years with a high level of social anxiety symptoms had significantly higher levels of threat interpretation than those with low social anxiety symptoms (Miers, Blöte, Bögels,

& Westenberg, 2008). To date, no studies have examined interpretation biases exclusively in adolescents with anxiety disorders or contrasted adolescents with younger age groups.

Further research is needed to examine interpretation biases in the context of anxiety disorders with age groups that correspond to distinct developmental stages. As such, the current study examined the hypothesis that children and adolescents with anxiety disorders will exhibit significantly higher levels of threat interpretation, anticipated negative emotion, predicted avoidant behaviours and lower levels of perceived control in response to ambiguity than non-anxious children and adolescents. We also set out to explore whether differences between anxious and non-anxious groups were stronger for adolescents compared to children, i.e., whether age group moderated the association between anxiety disorder status and threat interpretation.

We chose to use an ambiguous scenarios paradigm to measure interpretation bias because it is the most widely used measure of interpretation of ambiguity in relation to anxiety in children and young people, and therefore allows us to draw meaningful comparisons with existing studies, and is less reliant on knowledge of specific vocabulary than, for example, a homograph-based task (Waters, Wharton, et al., 2008).

Methods

Participants

Children and adolescents with anxiety disorders. All participants with anxiety disorders were referred by primary and secondary care services for treatment of an anxiety disorder. To be included in the study, all children/adolescents were required to meet diagnostic criteria for a current anxiety disorder on the Anxiety Disorders Interview

Schedule (ADIS-C/P; Silverman & Albano, 1996) and for this to be identified as the primary problem. They were not invited to participate if they had an autistic spectrum disorder, significant intellectual impairment, a risk of deliberate self-harm, if they were currently receiving therapy, or if they did not understand and speak English. No participants in the study were taking psychoactive medication.

Thirty adolescents aged between 13-16 years, who met diagnostic criteria for an anxiety disorder, were recruited. We then selected 30 children aged 7-10 years, who had been diagnosed with an anxiety disorder and had completed the same assessment as part of a wider study; the data from these participants has not been published elsewhere. The children with anxiety disorders were selected to match the adolescent group on their primary anxiety disorder, comorbid mood and behaviour disorders, gender, ethnicity and socio-economic status. Table 1 provides information on the sample characteristics for all participants. For both groups, the primary anxiety disorder diagnoses were: social anxiety disorder (27%), specific phobia (30%), generalized anxiety disorder (23%), panic disorder, with or without agoraphobia (17%) and agoraphobia without panic disorder (3%).

Non-anxious children and adolescents. Thirty non-anxious adolescents aged 13-16 years were recruited. A further 30 non-anxious children aged 7-10 years were selected from a wider study in order to match the children/adolescent groups where possible on demographic variables¹. All non-anxious participants were recruited through advertisements sent to local schools and youth groups. To be included in the study, all non-

¹Of the non-anxious child group, 18 cases (60%) were also included in Creswell et al.'s (2014) non-anxious sample.

anxious participants were required to score below clinical cut-offs on the SCAS-P and the SMFQ-P, speak English and have no significant intellectual impairment.

Measures

Diagnoses. Children and adolescents' diagnoses were determined using the ADIS-C/P (Silverman & Albano, 1996). This structured interview, designed to assess current DSM-IV anxiety disorders, as well as current mood and behavioural disorders, has good psychometric properties (Silverman, Saavedra, & Pina, 2001). As is standard, if the child/adolescent met symptom criteria for a diagnosis, on the basis of his/her report or that of his/her parent, the assessor assigned a Clinician Severity Rating (CSR), ranging from 0 (*absent or none*) to 8 (*very severely disturbing/disabling*); a CSR of 4 or more indicated the child/adolescent met criteria for diagnosis. The diagnosis with the highest CSR was classed as the primary diagnosis. Overall inter-rater reliability for the assessment team was good to excellent: child report, $M = .97$ (range .88 – 1.00), parent report, $M = .98$ (range .92 – 1.00) and for CSR scores was: child report, $M = .98$ (range .91 – 1.00) and parent report, $M = .98$ (range .96 – 1.00).

Symptoms. The Spence Children's Anxiety Scale (SCAS-C/P; Spence, 1998) assesses child/adolescent and parent-reported symptoms. The SCAS includes 38 items to assess anxiety symptoms (and 6 positive filler items in the child version), each scored on a 4-point scale, ranging from 0 (*never*) to 3 (*always*). The measure has been validated for use with children/adolescents aged 6-18 years and both versions have good reliability, as well as discriminant and convergent validity (Nauta et al., 2004; Spence, Barrett, & Turner, 2003). Internal consistency for these scales was excellent (SCAS-C $\alpha = .92$; SCAS-P $\alpha = .94$).

The Short Mood and Feelings Questionnaire (SMFQ-C/P; Angold et al., 1995) is a self-report measure to assess child/adolescent depression. The child/adolescent and parent versions both have 13 items, each scored on a 3-point scale ('not true', 'sometimes' or 'true'). The scale has been validated with children/adolescents aged 6-17 years and has good internal reliability and discriminant validity (Angold et al., 1995). Internal consistency for the SMFQ was good to excellent (SMFQ-C $\alpha = .86$; SMFQ-P $\alpha = .93$).

Ambiguous Scenarios. The Ambiguous Scenarios Questionnaire (Barrett, Rapee, Dadds, et al. (1996) was originally developed for administration with children and young people aged 7 to 14 years, and consists of 12 hypothetical situations (six social and six non-social). We used a modified version (Creswell et al., 2014) in which, after being presented with each ambiguous scenario (e.g., 'You see the head teacher walking around the school grounds and they have been asking other students/children where you are'), participants are asked to (a) rate how they would feel in this situation (0 = *not at all upset*; 10 = *very upset; negative emotion*), (b) give a free response to the question 'Why do you think this is happening?' (threat free response), (c) rate how much they would be able to do about this situation (0 = *nothing*, 10 = *a lot*) (perceived control), (d) give a free response to the question 'What would you do?' (behaviour free response) and, (e) choose which of two alternatives (threat/non-threat) they would be more likely to think in this situation (threat forced choice) (e.g., 'The head teacher thinks you have done something wrong' or 'The head teacher has a message from your parent for you').

Free responses were coded as threat/non-threat and avoidance/non-avoidance, by a psychology undergraduate, blind to participant group and scores on all other measures. A second independent coder (undergraduate psychologist) coded a sample of the responses

($n = 26$) in order to assess inter-rater reliability. Intraclass correlations were good, ICC for threat was .97 and ICC for avoidance was .75. Scores for each domain were totalled across the 12 scenarios. Internal consistency was excellent for negative emotions (children $\alpha = 0.82$, adolescents $\alpha = 0.91$), good for threat (children $\alpha = 0.82$, adolescents $\alpha = 0.91$) and acceptable for control (children $\alpha = 0.78$, adolescents $\alpha = 0.88$). The poor internal consistency for avoidance (children $\alpha = 0.28$, adolescents $\alpha = 0.40$) is likely to reflect the low frequency of avoidant behaviour within both child and adolescent samples.

Procedure

Ethical approval for the study was given by the National Research Ethics Service (NRES) London - Brent Research Ethics Committee and the University of Reading Ethics Committee. All participants provided informed consent after the nature of the procedures was explained, prior to taking part in the research.

The children and adolescents with anxiety disorders and their parents were seen for an initial assessment, to complete standardized questionnaires and undertake the diagnostic interview, carried out by psychology graduates who received thorough training and regular supervision. If the child/adolescent met the inclusion criteria for the study, the study was discussed with them and their parent, and they were given the information sheet and consent form to take away and read. For the non-anxious participants, if they expressed an interest in the study, they were sent consent forms, information sheets and the screening measures to complete and return. Eligible and consenting participants then completed a laboratory-based assessment at the university, which included the ASQ. The

ASQ was administered verbally, audio-recorded and the researcher wrote down the participants' answers.

Results

Data reduction, analytic strategy and preliminary analyses

Continuous data was screened to examine whether it met assumptions of normality and, with the exception of the domain of perceived control, assumptions were violated. Attempts to transform the data were unsuccessful and therefore, analyses were run parametrically with 1,000 bootstrap samples. All tests were two-tailed.

We began by conducting bivariate correlations to establish the extent of the association between ASQ responses. As in previous reports (e.g., Creswell, O'Connor & Brewin, 2006), the free and forced choice threat responses correlated highly ($r = .61$) and therefore were combined to reduce the number of variables. Although there were also significant correlations (at $p < .01$) between negative emotions and control ($r = .33$), negative emotions and threat ($r = .53$), and threat and avoidance ($r = .44$), these domains were analysed separately as we were interested in their distinct roles.

To address the hypotheses, multivariate analyses of variance (MANOVA), using Pillai's trace, were carried out, with anxiety (anxiety disorder or non-anxious), age group (child or adolescent) and their interaction entered as independent variables. Threat interpretation, negative emotions, control and avoidance were entered as dependent variables. Where the effects of the interaction were significant, t-tests were used to explore differences between groups. Group means are presented in Table 2. Although the clinically anxious groups were matched for mood disorder diagnoses, we also conducted

the analyses controlling for depressive symptoms, with scores on the SMFQ-C/P as a covariate, and also repeated the analyses excluding the five children and five adolescents with comorbid mood disorders. Results were broadly consistent but where there was a difference in findings, this is highlighted. Finally, because there were group differences on SES (Table 1), further sensitivity analyses were undertaken using MANCOVA, controlling for SES and as this did not change the results, analyses are reported without the inclusion of SES. We also examined gender, both as a covariate and a moderator of the effect of anxiety status, and found no significant main effect of gender, no difference in the overall pattern of results when controlling for gender and no significant gender x anxiety group interaction effects.

Hypothesis testing

The results of the MANOVA indicated that there was a significant effect of anxiety disorder ($V = .11$, $F[4, 112] = 3.34$, $p = .01$) and age group ($V = .11$, $F[4, 112] = 3.46$, $p = .01$) and a significant anxiety disorder by age group interaction ($V = .16$, $F[4, 112] = 5.25$, $p = .001$) on participants' responses.

While this same pattern was observed when we excluded participants with comorbid mood disorders from the analysis, when SMFQ scores were entered as a covariate, the significant main effect of anxiety disorder was no longer significant for child/adolescent report ($V = .06$, $F[4, 108] = 1.80$, $p = .13$) and parent report ($V = .03$, $F[4, 110] = 0.83$, $p = .51$), although the significant effect of age group (SMFQ-C: $V = .10$, $F[4, 108] = 3.05$, $p < .01$; SMFQ-P: $V = .12$, $F[4, 110] = 3.58$, $p < .01$), and anxiety disorder by age group

interaction maintained (SMFQ-C: $V = .13$, $F[4, 108] = 3.90$, $p < .01$; SMFQ-P: $V = .14$, $F[4, 110] = 4.62$, $p < .01$).

There was a significant effect of anxiety disorder for threat interpretation ($F[1,115] = 10.60$, $p = .001$, $\omega^2 = .07$), with significantly more threat responses given by children and adolescents with an anxiety disorder (mean = 9.18, $SD = 4.46$), compared to non-anxious children and adolescents (mean = 6.80, $SD = 3.96$). There was also a significant effect of age group ($F[1,115] = 5.68$, $p = .02$, $\omega^2 = .03$), with significantly more threat responses given by children (mean = 8.88, $SD = 4.04$), compared to adolescents (mean = 7.10, $SD = 4.52$). As shown in Figure 1a, the interaction between age and anxiety group was also statistically significant ($F[1,115] = 7.79$, $p = .01$, $\omega^2 = .05$) with adolescents, but not children, with an anxiety disorder showing significantly more threat interpretation compared to their non-anxious counterparts ($t(58) = 4.37$, $p < .01$, $d = 1.13$; $t(58) = 0.29$, $p = .78$, $d = 0.08$ respectively). A significant main effect of anxiety disorder was also observed both when we excluded participants with a comorbid mood disorder and when we entered child/adolescent reported SMFQ scores, however it became non-significant when parent-reported SMFQ scores were entered as a covariate ($F[1,113] = 2.08$, $p = .15$, $\omega^2 = .01$).

For anticipated negative emotions, neither the effect of anxiety disorder ($F[1,115] = 1.69$, $p = .20$, $\omega^2 = .01$), nor the effect of age group was significant ($F[1,115] = 2.51$, $p = .12$, $\omega^2 = .01$). However, the interaction between age and anxiety group was statistically significant ($F[1,115] = 12.99$, $p < .001$, $\omega^2 = .09$). As shown in Figure 1b, adolescents (but not children) with an anxiety disorder anticipated significantly more negative emotions, compared to their non-anxious counterparts ($t(58) = 3.17$, $p < .01$, $d = 0.83$; $t(58) = -1.81$, $p = .08$, $d = 0.47$ respectively).

For perceived control the effect of anxiety disorder was not significant, ($F[1,115] = 0.37, p = .54, \omega^2 = .01$), however the effect of age group was significant ($F[1,115] = 6.00, p = .02, \omega^2 = .04$), with evidence of lower coping expectations among adolescents (mean = 43.80, $SD = 24.59$), compared to children (mean = 53.97, $SD = 20.20$). As can be seen in Figure 1c, the interaction between age and anxiety group was not statistically significant ($F[1,115] = 1.30, p = .26, \omega^2 < .001$).

For avoidance there was a significant effect of anxiety disorder ($F[1,115] = 7.86, p = .01, \omega^2 = .05$), with significantly more avoidant responses given by children and adolescents with an anxiety disorder (mean = 1.23, $SD = 1.23$), compared to non-clinical children and adolescents (mean = 0.69, $SD = 0.84$). However, neither the effect of age group ($F[1,115] = 1.14, p = .29, \omega^2 < .001$), nor the interaction between age and anxiety group ($F[1,115] = 1.87, p = .18, \omega^2 = .01$) (Figure 1d) was statistically significant. Consistent with the finding for threat interpretation, while the significant main effect of anxiety disorder was also observed when we excluded participants with a comorbid mood disorder from the analysis and when we entered child/adolescent-reported SMFQ scores, it became non-significant when parent-reported SMFQ scores were entered as a covariate ($F[1,113] = 1.78, p = .19, \omega^2 = .01$).

To summarize, compared to non-anxious children and adolescents, children and adolescents with anxiety disorders exhibited significantly higher levels of threat interpretation and predicted avoidant behaviours, but there were no significant differences related to anticipated negative emotion or perceptions of control. Adolescents reported significantly lower levels of threat interpretation and coping expectations compared to children but there were no significant differences between the age groups for negative

emotion or perceived control. Of particular note, we found that age group moderated the association between anxiety disorder status and threat interpretation with adolescents, but not children, with an anxiety disorder showing significantly more threat interpretation and predicting more negative emotion compared to their non-anxious counterparts.

Discussion

The aim of this study was to examine interpretation biases in children and young people in distinct developmental stages (middle childhood and adolescence) with and without anxiety disorders. We found that adolescents with an anxiety disorder showed significantly more threat interpretation and anticipated more negative emotion, compared to non-anxious adolescents, whereas a similar relationship was not observed among the two child groups. This remained the case when mood disorders, depressive symptoms and socio-economic status were taken into account. As hypothesized, significantly more avoidant responses were given by both children and adolescents with an anxiety disorder, compared to non-anxious children and adolescents. Contrary to our hypotheses, we did not find an effect of anxiety disorder for negative emotions or perceptions of control.

The finding that, compared to non-anxious adolescents, adolescents with anxiety disorders show significantly higher levels of threat interpretation and anticipated negative emotion is consistent with the one existing community-based study with a similar age group (Miers et al., 2008), and studies involving adults (e.g., Amir et al., 2005; Mathews & Mackintosh, 2000). It is also consistent with some preliminary studies of cognitive bias modification of interpretation (CBM-I), that have shown changes in anxiety when biases are modified in non-anxious adolescents (Lau, Belli, & Chopra, 2013; Telman, Holmes, & Lau,

2013) and clinically anxious adolescents (Reuland & Teachman, 2014) (although see Salemink & Wiers (2011) for conflicting findings). Together, these findings provide support for the notion that treatment focused on addressing interpretation biases is warranted among adolescents with anxiety disorders (e.g., Micco, Choate-Summers, Ehrenreich, Pincus, & Mattis, 2007).

The lack of a significant difference between the children with anxiety disorders and non-anxious children for threat interpretation is consistent with the findings of Creswell et al. (2014) and Waters, Craske, et al. (2008), but discrepant with findings from other studies (e.g., Alkozei et al., 2014; Waters, Wharton, et al., 2008). Furthermore in contrast to Creswell et al. (2014) and Waters, Craske, et al. (2008), we failed to find significant differences between anxious and non-anxious children on anticipated negative emotion. There were also no significant differences between these groups for perceptions of coping, which was consistent with Creswell et al. (2014), where a significant difference was only found for 10-12 year old and not 7-9 year old children, but not with studies involving children of broader age ranges, e.g., Bögels et al. (2003) and Waters, Craske, et al. (2008). The lack of significant associations between interpretation of ambiguity and anxiety among children is in line with CBM-I studies in which changes in threat interpretation have not consistently translated in to changes in anxiety (e.g., Lester, Field, & Muris, 2011; Vassilopoulos, Moberly, & Zisimatou, 2013). Although studies suggest that a cognitive element is associated with treatment gains in children (e.g., Kendall & Treadwell, 2007; Peris et al., 2014), they typically involve children across broader ages than the current study (e.g., 9-13 years; 7-12 years, respectively). Indeed, inconsistencies in the literature to date

may reflect differences in the distribution of child age within the broad age categories included in these studies.

Our findings suggest that although children with anxiety disorders aged 7-10 years show similar levels of threat interpretation and anticipated negative emotion to adolescents with anxiety disorders, this is also the case for non-anxious children. It is likely that for non-anxious children, at some point generally after the age of 10 years, they are able to inhibit these biases, perhaps as their thinking styles become more stable and as they develop a greater body of experiences to draw from to inform their thinking (e.g., Nolen-Hoeksema et al., 1992).

Unexpectedly, we found that perceptions of coping were related to age and not anxiety status, with significantly lower levels of coping expectations among adolescents compared to children. This may seem counter-intuitive given the research suggesting that locus of control becomes more internal over time, especially around mid-adolescence (Chubb, Fertman, & Ross, 1997) and that adolescents are likely to have a wider repertoire of skills to draw on than children when dealing with ambiguous situations. Instead, however, this finding may reflect adolescents having more experience in their lives of not feeling in control, such as within the school environment and social relationships and a greater awareness than children of the limits of their abilities to deal with certain situations. Similarly they may feel constrained in what they can do, especially in ambiguous social situations, due to a desire to fit in and be accepted by peers. In contrast to the findings for threat interpretation and negative emotion, there was neither a significant main effect of anxiety nor a significant interaction between age and anxiety. However the (non-significant) pattern of results is consistent with a pattern of reduced perceived control

among anxious adolescents specifically. Further studies, powered to detect smaller effects, will be useful to explore this further.

Although there were relatively low levels of anticipated avoidance across all groups, children and adolescents with anxiety disorders were significantly more likely to suggest the use of a strategy involving avoidance than their non-anxious counterparts. This is accordant with the cognitive behavioural model of anxiety in adults, where avoidance is understood to prolong anxiety by impeding new learning and supports the inclusion of strategies to overcome avoidance in treatment for children and adolescents with anxiety disorders. Notably this finding is consistent with Chorpita et al. (1996), where the mean age of participants was older than the two studies (Barrett, Rapee, Dadds, et al., 1996; Bögels et al., 2003) that did not find an association between child anxiety and avoidance. Although the effect of anxiety disorder status on avoidant behaviours remained significant when child-reported symptoms of mood were controlled for, it became non-significant when parent-reported child/adolescent symptoms of low mood were included as a covariate. This may reflect the fact that avoidance is associated with symptoms of both anxiety and depression, or perhaps that there is considerable shared variance in parent-reported anxiety and depression. Unlike threat interpretation and negative emotion, there was not a moderating effect of age. There were, however, elevated levels of anticipated avoidance among the anxious adolescents compared to the anxious children, suggesting that avoidance is increasingly used, albeit unsuccessfully, as a means of trying to deal with feared situations. The lack of increase in anticipated avoidance with age in the non-anxious group is consistent with a community-based study by Miers, Blöte, Heyne, and Westenberg

(2014), who found that at the age of nine, youngsters who went on to show either low or high levels of avoidance of social situations in adolescence were hardly distinguishable.

The results of this study should be considered in light of the limitations. The cross-sectional nature of the study design means that conclusions cannot be drawn with regards to the direction of effects (i.e. whether interpretations biases have a causal influence on anxiety). On the basis that childhood and adolescence can be seen as distinct, developmental periods (Erikson, 1968), we considered age within two categories, but of course, changes are unlikely to occur in such a discrete way. The mean SCAS-C score for the children with anxiety disorders was lower than would be expected on the basis of the published norms, but is in line with other clinical studies (e.g., Hudson et al., 2009). This may reflect a lack of ability for children with anxiety disorders to reflect upon and accurately report their own internal state at this age, difficulty fully understanding what is meant by some questions, a desire to please by minimizing the problem, or discomfort in disclosing information (Kendall & Chansky, 1991; Ronan, 1996). Finally, we were underpowered to examine whether there were anxiety-disorder specific associations and this would be an important direction for further research.

The finding that, compared to non-anxious adolescents, adolescents with anxiety disorders had significantly higher levels of threat interpretation and negative emotion suggests that the adult cognitive model of anxiety (Beck & Clark, 1997) may be equally applicable to adolescents. However, the lack of significant differences between anxious and non-anxious children fails to support the validity of the model for children under the age of ten years and inevitably leads to the question of whether cognitive strategies are required in interventions for anxiety disorders in middle childhood. We cannot determine from the

current study whether the lack of significant findings for children relate to methodological factors, for example difficulties in accurately reflecting on how one would respond to hypothetical situations, particularly in the absence of elevated affect. However the methods used here are not dissimilar to methods commonly used in generic CBT approaches to childhood anxiety disorders using thought records to examine evidence for and against negative thoughts (e.g., Kendall & Hedtke, 2006; Rapee et al., 2006). At the very least, the current findings suggest that attempting to challenge thoughts in this way may not be indicated with children less than 10 years of age.

The development of more ecologically valid measures of interpretation of ambiguity will be required to test to what extent the findings are influenced by differences in how children and adolescents respond to hypothetical scenarios. Indeed, the findings may also reflect the possibility that the relative contribution of cognitive factors and other factors (such as biological vulnerability, life events/ lifestyle factors and learning through the behaviour of parents and other key people in the young person's life; Murray, Creswell, & Cooper, 2009) vary substantially throughout development and cognitions may make an increasingly influential contribution to changes in affect throughout adolescence (e.g., Nolen-Hoeksema et al., 1992). A clearer developmentally informed understanding of factors that maintain anxiety disorders in childhood and adolescence is required in order to inform and improve interventions for these common and debilitating disorders.

Conclusion

To conclude, the findings from the current study are consistent with the suggestion that key aspects of adult cognitive models of anxiety are applicable to adolescents and that

treatments focused on addressing interpretation biases and avoidance are warranted.

Compared to their non-anxious peers, children with anxiety disorders under the age of 10 years did not show significantly greater threat interpretations, negative emotion or reduced expectations around coping. There were, however, higher levels of avoidance amongst children and adolescents with anxiety disorders, compared to those without, which is consistent with the view that, for both age groups, behavioural strategies addressing avoidance should be an important part of treatment.

References

- Adleman, N. E., Menon, V., Blasey, C. M., White, C. D., Warsofsky, I. S., Glover, G. H., & Reiss, A. L. (2002). A developmental fMRI study of the Stroop color-word task. *Neuroimage, 16*(1), 61-75.
- Alkozei, A., Cooper, P. J., & Creswell, C. (2014). Emotional reasoning and anxiety sensitivity: Associations with social anxiety disorder in childhood. *Journal of Affective Disorders, 152*, 219-228. doi: 10.1016/j.jad.2013.09.014
- Amir, N., Beard, C., & Bower, E. (2005). Interpretation bias and social anxiety. *Cognitive Therapy and Research, 29*(4), 433-443 doi: 10.1007/s10608-005-2834-5
- Anderson, V. A., Anderson, P., Northam, E., Jacobs, R., & Catroppa, C. (2001). Development of executive functions through late childhood and adolescence in an Australian sample. *Developmental Neuropsychology, 20*(1), 385-406.
- Angold, A., Costello, E. J., Messer, S. C., Pickles, A., Winder, F., & Silver, D. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *International Journal of Methods in Psychiatric Research, 5*, 237-249.
- Barrett, P. M., Rapee, R. M., & Dadds, M. R. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology, 64*, 333-342.
- Barrett, P. M., Rapee, R. M., Dadds, M. R., & Ryan, S. (1996). Family enhancement of cognitive style in anxious and aggressive children. *Journal of Abnormal Child Psychology, 24*(2), 187-203.
- Beck, A. T., & Clark, D. A. (1997). An information processing model of anxiety: Automatic and strategic processes. *Behaviour Research and Therapy, 35*(1), 49-58.

- Bögels, S. M., Snieder, N., & Kindt, M. (2003). Specificity of dysfunctional thinking in children with symptoms of social anxiety, separation anxiety and generalised anxiety. *Behaviour Change*, *20*, 160-169. doi: 10.1375/bech.20.3.160.24836
- Bögels, S. M., & Zigterman, D. (2000). Dysfunctional cognitions in children with social phobia, separation anxiety disorder, and generalized anxiety disorder. *Journal of Abnormal Child Psychology*, *28*, 205-211.
- Butler, G., & Mathews, A. (1983). Cognitive processes in anxiety. *Advances in behaviour research and therapy*, *5*(1), 51-62.
- Chorpita, B. F., Albano, A. M., & Barlow, D. H. (1996). Cognitive processing in children: Relation to anxiety and family influences. *Journal of Clinical Child Psychology*, *25*, 170-176. doi: 10.1207/s15374424jccp2502_5
- Chubb, N. H., Fertman, C. I., & Ross, J. L. (1997). Adolescent self-esteem and locus of control: A longitudinal study of gender and age differences. *Adolescence*, *32*(125), 113.
- Creswell, C., Murray, L., & Cooper, P. J. (2014). Interpretation and expectation in childhood anxiety disorders: Age effects and social specificity. *Journal of Abnormal Child Psychology*, *42*, 453-465. doi: 10.1007/s10802-013-9795-z
- Creswell, C., & O'Connor, T. G. (2006). Anxious cognitions in children: An exploration of associations and mediators. *British Journal of Developmental Psychology*, *24*, 761-766. doi: 10.1348/026151005X70418
- Creswell, C., Schneiring, C. A., & Rapee, R. M. (2005). Threat interpretation in anxious children and their mothers: comparison with nonclinical children and the effects of treatment. *Behaviour Research and Therapy*, *43*, 1375-1381.

- Creswell, C., Shildrick, S., & Field, A. P. (2011). Interpretation of ambiguity in children: A prospective study of associations with anxiety and parental interpretations. *Journal of Child and Family Studies, 20*(2), 240-250. doi: 10.1007/s10826-010-9390-7
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.
- Essau, C. A., & Gabbidon, J. (2013). Epidemiology, comorbidity and mental health service utilization. In C. A. Essau & T. H. Ollendick (Eds.), *The Wiley-Blackwell handbook of the treatment of childhood and adolescent anxiety* (First ed.). Chichester: Wiley-Blackwell.
- Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: exposure to corrective information. *Psychological Bulletin, 99*(1), 20.
- Gogtay, N., Giedd, J. N., Lusk, L., Hayashi, K. M., Greenstein, D., Vaituzis, A. C., . . . Toga, A. W. (2004). Dynamic mapping of human cortical development during childhood through early adulthood. *Proceedings of the National Academy of Sciences of the United States of America, 101*(21), 8174-8179.
- Gray, J. A., & McNaughton, N. (2003). *The neuropsychology of anxiety: An enquiry into the function of the septo-hippocampal system*. Oxford: Oxford University Press.
- Hooper, C. J., Luciana, M., Conklin, H. M., & Yarger, R. S. (2004). Adolescents' performance on the Iowa Gambling Task: implications for the development of decision making and ventromedial prefrontal cortex. *Developmental Psychology, 40*(6), 1148.
- Hudson, J. L., Rapee, R. M., Deveney, C., Schniering, C. A., Lyneham, H. J., & Bovopoulos, N. (2009). Cognitive-behavioral treatment versus an active control for children and adolescents with anxiety disorders: a randomized trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*(5), 533-544.

Kendall, P. C., & Chansky, T. E. (1991). Considering cognition in anxiety-disordered children.

Journal of Anxiety Disorders, 5(2), 167-185.

Kendall, P. C., & Hedtke, K. A. (2006). *The coping cat workbook*: Workbook Pub.

Kendall, P. C., & Treadwell, R. H. (2007). The role of self-statements as a mediator in

treatment for youth with anxiety disorders. *Journal of Consulting and Clinical*

Psychology, 75, 380–389. doi: 10.1037/0022-006X.75.3.380

Lau, J. Y. F., Belli, S. R., & Chopra, R. B. (2013). Cognitive bias modification training in

adolescents reduces anxiety to a psychological challenge. *Clinical Child Psychology*

and Psychiatry, 18(3), 322-333.

Lester, K. J., Field, A. P., & Muris, P. (2011). Experimental modification of interpretation bias

about animal fear in young children: Effects on cognition, avoidance behavior,

anxiety vulnerability, and physiological responding. *Journal of Clinical Child and*

Adolescent Psychology, 40(6), 864-877.

Luna, B., Garver, K. E., Urban, T. A., Lazar, N. A., & Sweeney, J. A. (2004). Maturation of

cognitive processes from late childhood to adulthood. *Child Development, 75*(5),

1357-1372.

MacLeod, C., Mathews, A., & Tata, P. (1986). Attentional bias in emotional disorders.

Journal of Abnormal Psychology, 95(1), 15-20. doi: 10.1037/0021-843X.95.1.15

Mathews, A., & Mackintosh, B. (2000). Induced emotional interpretation bias and anxiety.

Journal of Abnormal Psychology, 109(4), 602-615. doi: 10.1037/0021-843X.109.4.602

Micco, J. A., Choate-Summers, M. L., Ehrenreich, J. T., Pincus, D. B., & Mattis, S. G. (2007).

Identifying efficacious treatment components of panic control treatment for

adolescents: A preliminary examination. *Child & Family Behavior Therapy, 29*, 1-23.

- Miers, A. C., Blöte, A. W., Bögels, S. M., & Westenberg, P. M. (2008). Interpretation bias and social anxiety in adolescents. *Journal of Anxiety Disorders, 22*, 1462–1471. doi: 10.1016/j.janxdis.2008.02.010
- Miers, A. C., Blöte, A. W., Heyne, D. A., & Westenberg, P. M. (2014). Developmental pathways of social avoidance across adolescence: The role of social anxiety and negative cognition. *Journal of Anxiety Disorders, 28*(8), 787-794.
- Mogg, K., Mathews, A., & Eysenck, M. (1992). Attentional bias to threat in clinical anxiety states. *Cognition and Emotion, 6*(2), 149-159.
- Mowrer, O. (1960). *Learning theory and behavior*. New York: John Wiley & Sons.
- Murray, L., Creswell, C., & Cooper, P. J. (2009). The development of anxiety disorders in childhood: An integrative review. *Psychological Medicine, 39*, 1413-1423.
- Nauta, M. H., Scholing, A., Rapee, R. M., Abbott, M., Spence, S. H., & Waters, A. (2004). A parent-report measure of children's anxiety: Psychometric properties and comparison with child-report in a clinic and normal sample. *Behaviour Research and Therapy, 42*, 813–839. doi: 10.1016/S0005-7967(03)00200-6
- Nolen-Hoeksema, S., Girgus, J. S., & Seligman, M. E. (1992). Predictors and consequences of childhood depressive symptoms: A 5-year longitudinal study. *Journal of Abnormal Psychology, 101*, 405-422. doi: 10.1037/0021-843X.101.3.405
- Öhman, A., & Mineka, S. (2001). Fears, phobias, and preparedness: toward an evolved module of fear and fear learning. *Psychological Review, 108*(3), 483.
- Peris, T. S., Compton, S. N., Kendall, P. C., Birmaher, B., Sherrill, J., March, J., . . . Piacentini, J. (2014). Trajectories of change in youth anxiety during cognitive-behavior therapy. *Journal of Consulting and Clinical Psychology*. doi: 10.1037/a0038402

- Piaget, J., & Inhelder, B. (1969). *The psychology of the child*. New York: Basic Books.
- Rapee, R. M., Lyneham, H. J., Schniering, C. A., Wuthrich, V., Abbot, M. A., Hudson, J. L., & Wignall, A. (2006). *The Cool Kids child and adolescent anxiety program therapist manual*. Sydney: Centre for Emotional Health, Macquarie University.
- Reuland, M. M., & Teachman, B. A. (2014). Interpretation bias modification for youth and their parents: A novel treatment for early adolescent social anxiety. *Journal of Anxiety Disorders, 28*(8), 851-864.
- Ronan, K. R. (1996). Building a reasonable bridge in childhood anxiety assessment: A practitioner's resource guide. *Cognitive and Behavioral Practice, 3*(1), 63-90.
- Salemink, E., & Wiers, R. W. (2011). Modifying threat-related interpretive bias in adolescents. *Journal of Abnormal Child Psychology, 39*(7), 967-976.
- Silverman, W. K., & Albano, A. M. (1996). *The anxiety disorders interview schedule for DSM-IV – child and parent versions*. San Antonio, TX: Psychological Corporation.
- Silverman, W. K., Saavedra, L. M., & Pina, A. A. (2001). Test-retest reliability of anxiety symptoms and diagnoses with the anxiety disorders interview schedule for DSM-IV: Child and parent versions. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 937-944. doi: 10.1097/00004583-200108000-00016
- Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy, 36*, 545 – 566.
- Spence, S. H., Barrett, P. M., & Turner, C. M. (2003). Psychometric properties of the Spence children's anxiety scale with young adolescents. *Journal of Anxiety Disorders, 17*, 605–625.

- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, *9*, 69-74. doi: 10.1016/j.tics.2004.12.005
- Taghavi, M. R., Moradi, A. R., Neshat-Doost, H. T., Yule, W., & Dalgleish, T. (2000). Interpretation of ambiguous emotional information in clinically anxious children and adolescents. *Cognition and Emotion*, *14*, 809-822. doi: 10.1080/02699930050156645
- Telman, M. D., Holmes, E. A., & Lau, J. Y. F. (2013). Modifying adolescent interpretation biases through cognitive training: Effects on negative affect and stress appraisals. *Child Psychiatry and Human Development*, *44*(5), 602-611.
- Vassilopoulos, S. P., Moberly, N. J., & Zisimatou, G. (2013). Experimentally modifying interpretations for positive and negative social scenarios in children: A preliminary investigation. *Behavioural and Cognitive Psychotherapy*, *41*(01), 103-116.
- Waters, A. M., Craske, M. G., Bergman, R. L., & Treanor, M. (2008). Threat interpretation bias as a vulnerability factor in childhood anxiety disorders. *Behaviour Research and Therapy*, *46*, 39-47. doi: 10.1016/j.brat.2007.10.002
- Waters, A. M., Wharton, T. A., Zimmer-Gembeck, M. J., & Craske, M. G. (2008). Threat-based cognitive biases in anxious children: Comparison with non-anxious children before and after cognitive behavioural treatment. *Behaviour Research and Therapy*, *46*, 358-374. doi: 10.1016/j.brat.2008.01.002
- Yurgelun-Todd, D. (2007). Emotional and cognitive changes during adolescence. *Current Opinion in Neurobiology*, *17*, 251-257. doi: 10.1016/j.conb.2007.03.009

TABLE 1. Sample characteristics

	Anxious children (n=30)	Non-anxious children (n=30)	Anxious adolescents (n=30)	Non-anxious adolescents (n=30)	Statistics
Child/adolescent gender (boys: girls)	14:16	20:10	14:16	16:14	$\chi^2(3)=3.21, p=.36$
Age in months (mean, <i>SD</i> , range)	112.20 (10.49), 94- 130 ^a	110.60 (9.77), 96- 131	181.50 (13.48), 158-198 ^a	183.03 (13.79), 161-205	$F(3, 116)=348.21, p<.001$
Ethnicity (% White British)	93%	93%	93%	90%	$\chi^2(3)=0.36, p=.95$
Family SES (% "higher" or "professional")	67%	73%	67% ^a	97% ^a	$\chi^2(3)=10.01, p=.02$
SCAS-c total (mean, <i>SD</i> , range)	36.20 (19.03), 10-81	27.89 (10.74), 6-44	39.23 (17.62), 10-87 ^b	10.97 (5.54), 2-24 ^b	$F(3, 111)=22.30, p<.001$

SCAS-p total (mean, SD, range)	36.03 (14.75), 10-65 ^a	13.97 (5.86), 5-28 ^a	31.77 (18.52), 5-88 ^b	6.87 (3.15), 1-14 ^b	$F(3, 111)=36.32, p<.001$
SMFQ-c total (mean, SD, range)	6.70 (4.50), 1-20	4.79 (3.20), 0-11	7.34 (5.77), 0-19 ^b	2.17 (2.41), 0-8 ^b	$F(3, 111)=8.86, p<.001$
SMFQ-p total (mean, SD, range)	6.60 (4.97), 0-21 ^a	1.83 (2.28), 0-10 ^a	8.63 (7.89), 0-25 ^b	1.43 (1.92), 0-8 ^b	$F(3, 111)=15.01, p<.001$
SDQ-p conduct (mean, SD, range)	2.10 (1.81), 0-8 ^a	0.90 (.92), 0-3 ^a	1.57 (1.65), 0-6 ^b	0.69 (1.14), 0-4 ^b	$F(3, 111)=5.49, p=.001$

Note. Where self-report data was missing, this was less than 10% of the dataset. Superscript letters refer to pairwise comparisons (conducted for children with anxiety disorders versus adolescents with anxiety disorders, children with anxiety disorders versus non-anxious children, and adolescents with anxiety disorders versus non-anxious adolescents); means that share subscripts within rows are significantly different at $p<.05$. SCAS = Spence Child Anxiety Scale, SDQ = Strengths and Difficulties Questionnaire, SES = socio-economic status, SMFQ = Short Moods and Feelings Questionnaire.

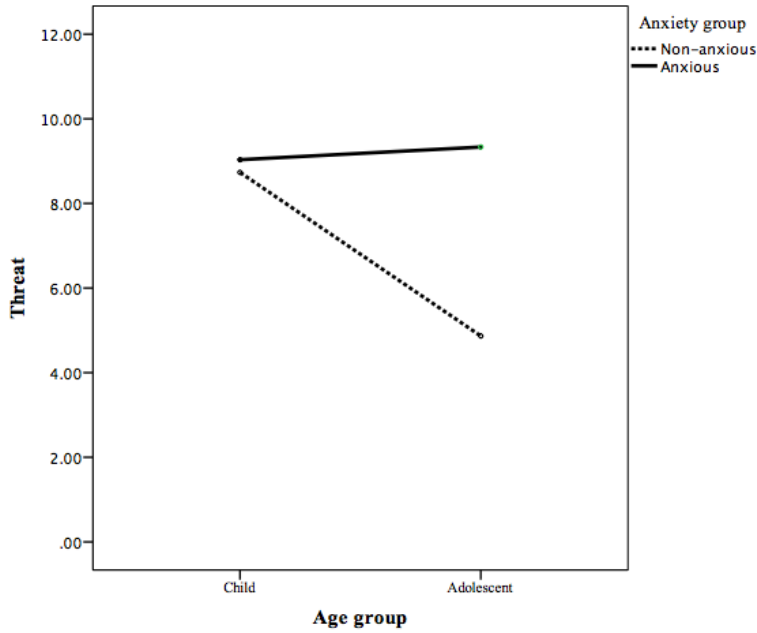
TABLE 2. Group differences in responses on the ambiguous scenarios questionnaire

	Anxious children (n=30)	Non-anxious children (n=29)	Anxious adolescents (n=30)	Non-anxious adolescents (n=30)
Threat (mean, <i>SD</i>, range)	9.03 (4.10), 0-17	8.69 (4.11), 0-15	9.33 (4.85), 2-21 ^a	4.87 (2.79), 0-12 ^a
Negative emotions (mean, <i>SD</i>, range)	47.00 (18.45), 6-88	55.83 (18.65), 12-90	54.73 (24.69), 17-100 ^a	35.97 (21.03), 0-65 ^a
Perceived control (mean, <i>SD</i>, range)	55.07 (21.70), 11-110 ^a	52.86 (19.22), 13-92	40.17 (23.84), 2-97 ^a	47.43 (25.20), 5-104
Avoidant behaviour (mean, <i>SD</i>, range)	1.00 (0.95), 0-3	0.72 (1.03), 0-4	1.47 (1.43), 0-6 ^a	0.67 (0.61), 0-2 ^a

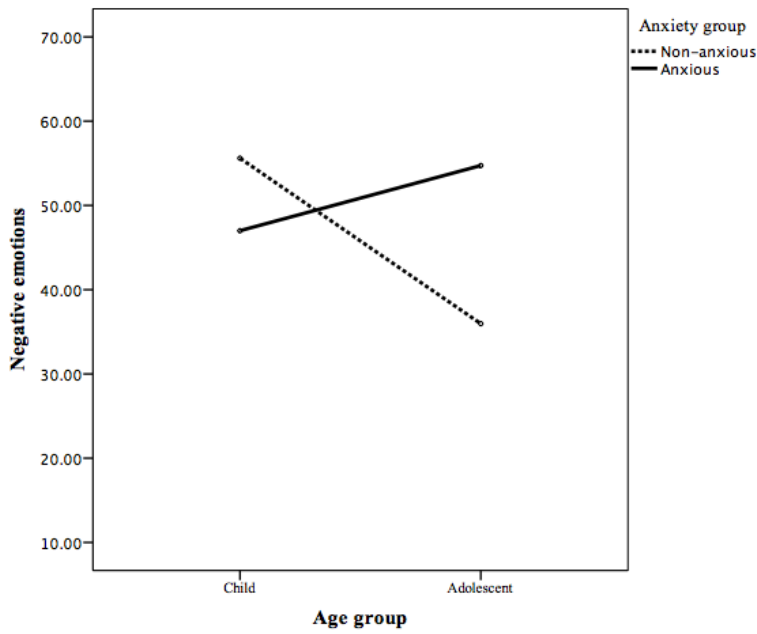
Note. Superscript letters refer to pairwise comparisons (conducted for children with anxiety disorders versus adolescents with anxiety disorders, children with anxiety disorders versus non-anxious children, and adolescents with anxiety disorders versus non-anxious adolescents); means that share subscripts within rows are significantly different at $p < .05$.

Figure 1. Interactions between anxiety disorder and age group

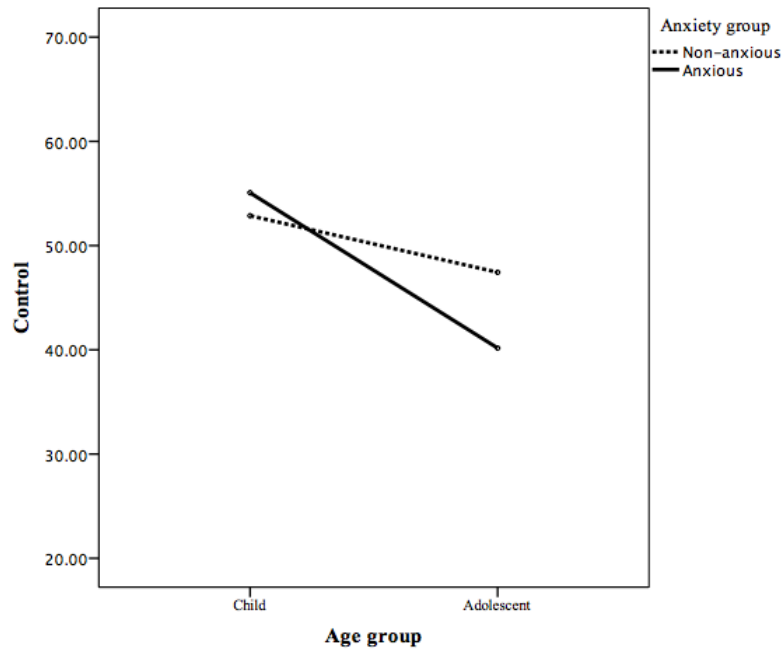
a. Threat



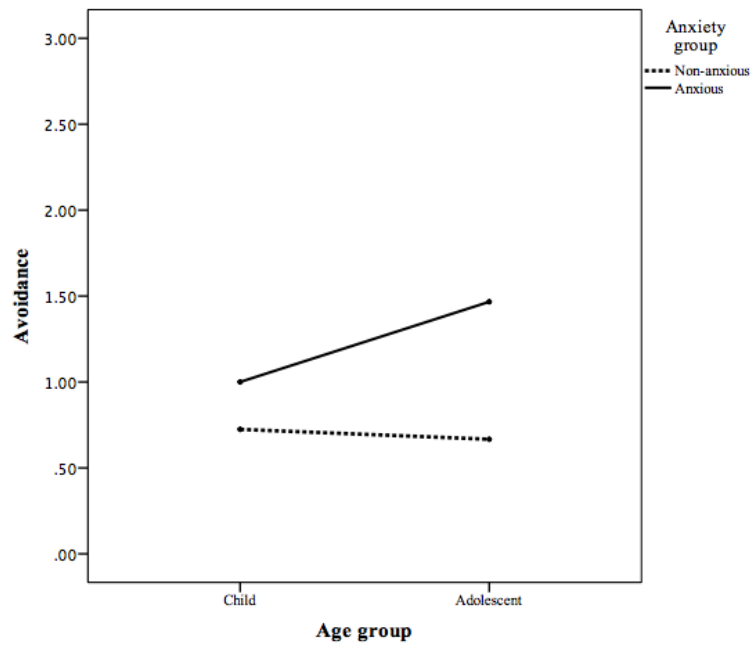
b. Negative emotions



c. Control



d. Avoidance



Chapter 7 Supplementary Data for Paper 4: Further Analyses with a Modified Anxious Child Sample

Rationale and aim

As with the previous empirical study, further analyses were conducted with the same modified anxious child sample to explore whether the same pattern of findings would be seen with a sample that better reflected what would typically be seen in routine clinical practice.

Method

The modified anxious child sample is described in the supplementary data section for the previous study (please see page 93).

Results

Table 1 provides the mean responses on the ambiguous scenarios questionnaire (ASQ) for the modified anxious child sample, alongside the original anxious child sample. Table 2 provides the mean responses on the ASQ for the modified anxious child sample, in comparison to the other three groups.

TABLE 1. Responses on the ambiguous scenarios questionnaire for the original anxious child sample and modified anxious child sample

	Anxious children	Anxious children
	Original sample (n=30)	Modified sample (n=30)
Threat (mean, <i>SD</i>)	9.03 (4.10)	9.47 (4.03)
Negative emotions (mean, <i>SD</i>)	47.00 (18.45)	51.27 (17.20)
Perceived control (mean, <i>SD</i>)	55.07 (21.70)	54.00 (20.60)
Avoidant behaviour (mean, <i>SD</i>)	1.00 (0.95)	0.97 (0.93)

TABLE 2. Group differences in responses on the ambiguous scenarios questionnaire using the modified anxious child sample

	Anxious children modified sample (n=30)	Non-anxious children original sample (n=29)	Anxious adolescents original sample (n=30)	Non-anxious adolescents original sample (n=30)
Threat (mean, <i>SD</i>)	9.47 (4.03)	8.69 (4.11)	9.33 (4.85) ^a	4.87 (2.79) ^a
Negative emotions (mean, <i>SD</i>)	51.27 (17.20)	55.83 (18.65)	54.73 (24.69) ^a	35.97 (21.03) ^a
Perceived control (mean, <i>SD</i>)	54.00 (20.60) ^a	52.86 (19.22)	40.17 (23.84) ^a	47.43 (25.20)
Avoidant behaviour (mean, <i>SD</i>)	0.97 (0.93)	0.72 (1.03)	1.47 (1.43) ^a	0.67 (0.61) ^a

Note. Superscript letters refer to pairwise comparisons (conducted for children with anxiety disorders versus adolescents with anxiety disorders, children with anxiety disorders versus non-anxious children, and adolescents with anxiety disorders versus non-anxious adolescents); means that share subscripts within rows are significantly different at $p < .05$.

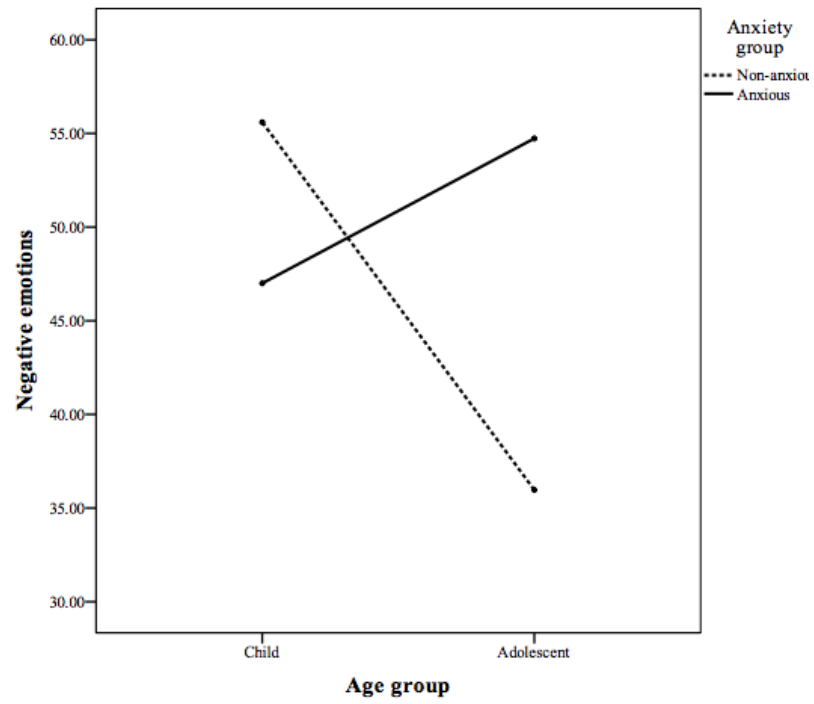
Using the modified anxious child sample, the results of the MANOVA were consistent with the results of the original sample. The pattern of significant and non-significant results was identical to the original results for threat interpretation, perceptions of control and anticipated avoidance. For negative emotions (see Figure 1), the results were consistent for the effects of anxiety disorder and the anxiety disorder by age group interaction; however, the effect of age group became significant ($F[1,115] = 4.71, p < .05$) with significantly more distress anticipated by children (mean = 53.43, $SD = 17.77$), compared to adolescents (mean = 45.35, $SD = 24.63$). There were no differences in the pattern of significant and non-significant findings using the modified anxious child sample, compared to the original anxious child sample, when controlling for child and parent-reported depressive symptoms and when excluding those with a comorbid mood disorder.

Discussion

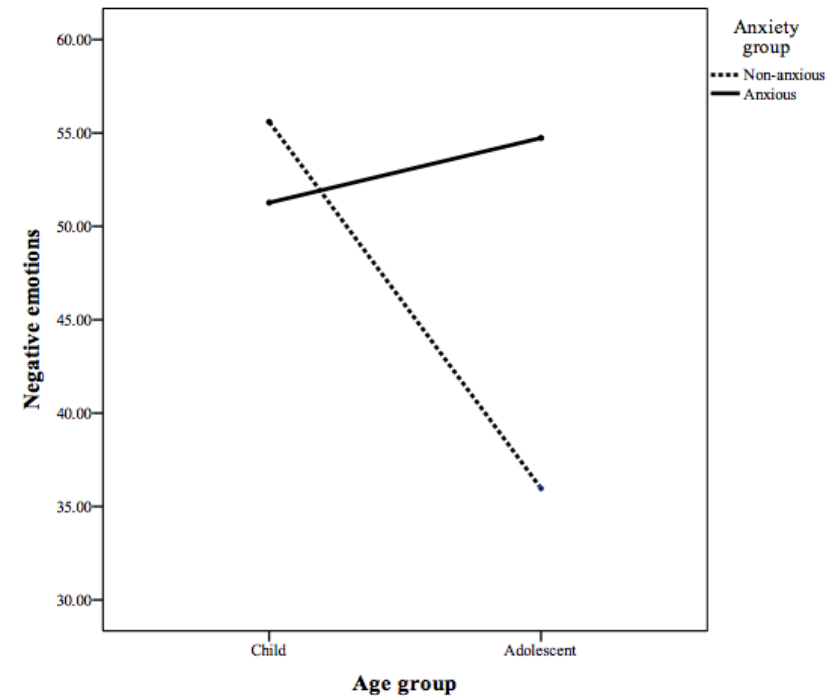
Consistent with the findings for the previous study, these results suggest that the findings presented in Paper 4 are robust and generalizable to a sample of children who have primary anxiety disorders that are more typical of those seen in this age group within routine clinical settings.

Figure 1. Interactions between anxiety disorder and age group for negative emotions

Original anxious child sample



Modified anxious child sample



Chapter 8 General Discussion

The overall aim of the four papers in this thesis was to further understanding of the characteristics of anxious adolescents who present to routine clinical services for treatment. Characteristics relating to clinical presentation, cognitive biases and parenting behaviours were the focus of the studies as they are all areas that could be addressed through psychological treatment. This is of importance, as there is some, albeit mixed, evidence that adolescents with anxiety disorders have significantly lower remission rates, compared to anxious children (e.g., Ginsburg et al., 2011). Specifically the papers sought to (i) identify the clinical characteristics of adolescents with anxiety disorders and examine how they differ from those of children with anxiety disorders, (ii) elucidate the parenting characteristics within the existing literature that apply to adolescents, and then investigate them further through an observational study and, (iii) identify whether associations between anxiety disorder status and interpretation biases differed in children and adolescents.

This general discussion will present an overview of findings from each of the papers in turn, and then consider the findings together in the context of adolescent normative development, specifically in relation to implications for clinical interventions and future research.

8.1 Overview of Findings

8.1.1 Paper 1: Children and adolescents referred for treatment of anxiety disorders:

Differences in clinical characteristics

This study compared the clinical characteristics of two consecutive series of children and adolescents referred to a routine clinical service for the treatment of anxiety disorders, building on previous work by including a representative clinical sample of children and young people systematically assessed for the full range of anxiety disorders, and comorbid conditions. It considered a range of factors that have been found to be associated with treatment outcome among youth with anxiety disorders (e.g., Berman, Weems, Silverman, & Kurtines, 2000; Ginsburg et al., 2011; Hudson et al., 2013). On the basis of community and clinic-based studies (e.g., Copeland, Angold, Shanahan, & Costello, 2014; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Kendall et al., 2010; Strauss, Lease, Last, & Francis, 1988), it was hypothesized that, compared to children with a primary anxiety disorder, adolescents with a primary anxiety disorder would be characterised by higher anxiety severity and more frequent social anxiety disorder, comorbid mood disorders, and irregular school attendance.

Consistent with the hypotheses, adolescents with a primary anxiety disorder were significantly more likely than children to (i) be rated by a clinician as having more severe anxiety for both the primary anxiety disorder and anxiety disorders overall, and rate themselves as having higher levels of anxiety symptoms, (ii) be diagnosed with social anxiety disorder as the primary disorder, (iii) be diagnosed with a comorbid mood disorder,

and rate themselves as having higher levels of depressive symptoms, and (iv) have irregular school attendance. In addition, more adolescents than children were diagnosed with panic disorder and/or agoraphobia (but due to the small numbers in children, this difference was not tested statistically). Contrary to hypotheses, there were no significant differences between the two groups in the frequency of behavioural disorders or symptoms of conduct problems, however there were relatively low levels of comorbid behavioural disturbance in both groups. Although there were a greater number of girls than boys in both age groups, gender was not significantly associated with any of the clinical characteristics, either on its own or in an interaction with age. There were no significant differences between the age groups on the frequency of generalised anxiety disorder and specific phobias (as primary disorders or overall), the frequency of social anxiety disorder overall, frequency of comorbid anxiety disorders, or for symptoms of psychopathology among primary caregivers.

In summary, the essential findings of the study were that, compared to their younger counterparts, adolescents with a primary anxiety disorder, from a referred, clinical population, had significantly higher self and clinician rated anxiety symptoms, more frequent primary diagnoses of social anxiety disorder, diagnoses and symptoms of mood disorders, and irregular school attendance.

8.1.2 Paper 2: Parent-child interactions and adolescent anxiety: A systematic review

Studies of associations between child anxiety and parenting characteristics have suggested that parental over-involvement, expressed anxiety and, to a lesser extent, rejection/lack of warmth, are implicated in the development and maintenance of anxiety in children and young people (e.g., Barrett, Rapee, & Dadds, 1996; Grüner, Muris, & Merckelbach, 1999; McLeod, Wood, & Weisz, 2007; van der Bruggen, Stams, & Bögels, 2008). The degree to which such findings apply to adolescents specifically, however, has been unclear as the majority of studies included children and young people from broad age ranges. This study was a systematic review of the literature examining the evidence for an association between parental behaviours and anxiety among adolescents.

The results of the review revealed the existing literature to be a heterogeneous group of studies, largely involving adolescents from community samples and using cross-sectional designs, where adolescents completed self-report questionnaires to measure their symptoms of anxiety and, in most cases, their perceptions of their parent's behaviour. The results of the studies provided fairly consistent preliminary evidence for an association between anxiety and perceived parental control and anxious rearing in adolescence. The findings relating to an association between adolescent anxiety and perceived parental rejection/lack of warmth, were somewhat less consistent. However, given the notable methodological shortcomings, the paper concluded that the results should be interpreted with caution, and that, to help identify the critical parental processes and clarify the direction of effects, further research should be conducted using observational and experimental designs with adolescents from referred, clinical populations.

8.1.3 Paper 3: Observing interactions between children and adolescents and their parents: The effects of anxiety disorder and age

To address some of the methodological problems within the existing literature outlined above, Paper 3 investigated the associations between parenting behaviours and anxiety in adolescents, using observational methods with clinically-referred adolescents and children (compared to non-anxious adolescents and children). The effects of anxiety disorder, age group and their interaction on parenting behaviours were examined. The hypotheses were that first, parents of offspring with anxiety disorders would exhibit significantly higher levels of intrusiveness and expressed anxiety and significantly lower levels of positive behaviours (i.e. warmth, engagement and encouragement) than parents of non-anxious offspring; and second, that parents of children would show significantly higher levels of intrusiveness, anxiety and positive behaviours than parents of adolescents. Given the lack of theory or prior evidence to guide directional hypotheses, interactions between offspring age and anxiety status were also explored.

Contrary to the first hypothesis, and the existing literature more broadly (see McLeod et al., 2007; van der Bruggen et al., 2008), there was not an overall significant effect of child/adolescent anxiety status for any parental behaviours. In accordance with the second hypothesis, parents of adolescents showed significantly lower levels of expressed anxiety, intrusiveness and warmth/engagement than parents of children. It is likely that as children move into adolescence, parents perceive their child to be more competent and therefore are less anxious about their child's ability to undertake the task successfully (Steinberg & Silk, 2002). The finding in relation to intrusiveness is consistent

with the normative literature that suggests that one of the characteristics of adolescence is a reduction in parental control (Steinberg, 2001). Lower levels of warmth/engagement among parents of adolescents, compared to children, are consistent with studies suggesting that middle childhood is characterized by parent-child relationships that are less challenging than in adolescence (Collins, Madsen, & Susman-Stillman, 2002) and that adolescents no longer idealise parents, and there are greater levels of general negative affect, less affection and time spent together than in childhood (e.g., Eberly & Montemayor, 1999; Larson, Moneta, Richards, & Wilson, 2002; Larson & Richards, 1991; Laursen, Coy, & Collins, 1998; Steinberg & Silk, 2002).

Finally, offspring age moderated the association between anxiety disorder status and parenting behaviours. Specifically, parents of adolescents with anxiety disorders showed higher intrusiveness and lower warmth/engagement than parents of non-anxious adolescents, whereas a similar relationship was not observed among parents of children. The finding in relation to intrusiveness is consistent with the results of the studies reviewed in Paper 2 (e.g., Hudson & Rapee, 2001; Verhoeven, Bögels, & van der Bruggen, 2012), and may suggest, as theorised by Chorpita and Barlow (1998), that parents of adolescents with anxiety disorders attempt to protect their child from distress or failure when faced with challenge. The significant finding in relation to warmth/engagement was also consistent with the majority of studies reviewed in Paper 2 and is likely to reflect the nature of the parent-adolescent relationship when placed under specific stressors; or perhaps the relationship more broadly, if the adolescent's anxiety and associated difficulties have resulted in higher levels of frustration and conflict within the family.

In summary, there was not an overall significant effect of child/adolescent anxiety status for any parental behaviour. Parents of adolescents showed significantly lower levels of expressed anxiety, intrusiveness and warmth/engagement than parents of children. Furthermore, offspring age moderated the association between anxiety disorder status and parenting behaviours, with parents of adolescents with anxiety disorders showing higher intrusiveness and lower warmth/engagement than parents of non-anxious adolescents. This underlies the importance of distinguishing between different developmental periods when accounting for the role of parental behaviours in anxiety disorders in children and adolescents.

8.1.4 Paper 4: Interpretation of ambiguity: Differences between children and adolescents with and without an anxiety disorder

Cognitive theories of anxiety in adults are founded upon the idea that anxious individuals are inclined to excessively infer future threat/danger in their environment and this leads to physiological arousal and behavioural avoidance, thus maintaining anxiety (Beck & Clark, 1997). This idea is supported by studies demonstrating that adults with elevated anxiety show a tendency to interpret ambiguous information in a disproportionately threatening way (e.g., Amir, Beard, & Bower, 2005; Mathews & Mackintosh, 2000). This approach has been extended to young people with anxiety disorders, based on the assumption that the information-processing biases found in adults are also found in children and adolescents. However, studies have typically not taken age into account and no studies have examined interpretation biases exclusively in adolescents with anxiety

disorders or contrasted adolescents with younger age groups. Paper 4 addressed this issue by comparing the responses of children (7-10 years) and adolescents (13-16 years) with and without anxiety disorders on an ambiguous scenarios task. It was hypothesised that, compared to non-anxious children and adolescents, children and adolescents with anxiety disorders would exhibit significantly higher levels of threat interpretation, anticipated negative emotion, predicted avoidant behaviours and lower levels of perceived control in response to ambiguity, and that age would moderate the association between anxiety disorder status and interpretation bias, with stronger associations among adolescents compared to children.

Compared to non-anxious adolescents, adolescents with an anxiety disorder showed significantly more threat interpretation and anticipated more negative emotion, whereas a similar relationship was not observed among the two child groups. The results for the adolescents were consistent with one community-based study (Miers, Blöte, Bögels, & Westenberg, 2008), and the studies involving adults outlined above. The lack of a significant difference between the children with anxiety disorders and non-anxious children for threat interpretation was consistent with the findings of Creswell, Murray, and Cooper (2014) and Waters, Craske, Bergman, and Treanor (2008), but discrepant with findings from other studies (e.g., Alkozei, Cooper, & Creswell, 2014; Waters, Wharton, Zimmer-Gembeck, & Craske, 2008). Inconsistencies in the literature to date may, at least in part, reflect differences in the distribution of child age within the broad age categories included in these studies (i.e., the studies that failed to find significant differences in interpretation of ambiguity included children who were younger on average than those that found significant

differences). As hypothesized, significantly more avoidant responses were given by children and adolescents with an anxiety disorder, compared to non-anxious children and adolescents. Contrary to the hypotheses, there was not a significant effect of anxiety disorder for either negative emotions or perceptions of control.

In summary, children and adolescents with an anxiety disorder showed significantly higher levels of threat interpretation and avoidant strategies than non-anxious children and adolescents. However, age significantly moderated the effect of anxiety disorder status, in that adolescents with anxiety disorders showed significantly higher levels of threat interpretation and associated negative emotion than non-anxious adolescents, but a similar relationship was not observed among children.

8.2 Limitations

The findings of the papers should be considered in light of the limitations. All four papers considered age categorically, on the basis that adolescence (and childhood) can be seen as a distinct, developmental period (Erikson, 1968), whereas in reality changes would be unlikely to occur in such a discrete manner. In the two empirical studies (papers 3 and 4), the children with anxiety disorders were selected to match the adolescents with anxiety disorders on the basis of their primary anxiety disorder diagnosis and comorbid mood and behaviour disorders, but it is still possible that the results could be accounted for by other overlapping symptoms, rather than anxiety. As a result of matching the groups for disorders, there were fewer children with a primary diagnosis of separation anxiety disorder

than would typically be seen in a general clinic population. However, when the sample was modified to be more representative, the findings were very similar. The mean SCAS-C score for the children with anxiety disorders was lower than would be expected on the basis of the published norms, but is in line with other clinical studies (e.g., Hudson, Rapee, et al., 2009). This may reflect a lack of ability for children with anxiety disorders to reflect upon and accurately report their own internal state at this age, difficulty fully understanding what is meant by some questions, a desire to please by minimizing the problem, or discomfort in disclosing information (Kendall & Chansky, 1991; Ronan, 1996). The artificial nature of the laboratory may mean that the behaviour of both parents and their offspring and responses on the measure of threat interpretation are not generalizable to everyday life. A further limitation is the categorisation of various parenting behaviours within broad constructs, whereas in reality, behaviours may not always clearly fit into one parenting dimension or may reflect elements of more than one dimension. The cross-sectional nature of both studies means that the direction of effects cannot be established. Although the clinically anxious children and adolescents had a range of anxiety disorders, we were underpowered to examine whether there were anxiety-disorder specific associations with particular parenting behaviours or interpretations of ambiguity in particular contexts. Finally, the children and adolescents were from a predominantly White British ethnic background and from relatively high socio-economic backgrounds and therefore results may not be generalizable to young people from more diverse ethnic and socio-economic backgrounds.

8.3 Implications for Future Research

8.3.1 The importance of taking age and development into account

The findings from the four papers presented in this thesis suggest that to understand anxiety disorders in children and adolescents, it is necessary to take age into account. Although studies typically report sample ages (or grade in school), very few examine differences in relation to age. For example, in the treatment studies across a range of disorders reviewed by Weisz and Hawley (2002) only 6.1% assessed the relationship between age and outcome. Age effects can stimulate hypotheses regarding developmental processes, which is of great importance in understanding how we should develop treatments to improve outcome. Given the dramatic biological, psychological and social role changes that occur during adolescence specifically (Feldman & Elliott, 1990), further research should consider grouping children and adolescents into cohorts based on distinct developmental stages.

Furthermore, there appear to be differences between adolescents at different stages within the adolescent period (e.g., Larson et al., 2002; Laursen et al., 1998). When considering the results of Paper 4 in relation to the broader literature, the findings may indicate important differences in the manifestation of anxiety disorders in 7-10 and 10-12 year olds. This suggests that further research should examine differences between still narrower age bands. Of course, one alternative would be to examine age continuously, but as age is really only a proxy for multiple diverse developmental factors, it will also be necessary to establish what the critical developmental markers are in order to inform the

design of further research. For example, onset of puberty appears to be of particular relevance in explaining rapid hormonal and neurological changes (Giedd, Keshavan, & Paus, 2008; Spear, 2010), and yet, to date, no studies appear to have examined whether timing of puberty moderates the associations between anxiety and potential maintenance factors.

8.3.2 Developing a better understanding of mechanisms and disorder-specific associations

The current findings suggest that there are far-reaching differences between adolescents and children with anxiety disorders (i.e., in clinical characteristics, cognition and parental behaviour). Although the normative developmental literature provides some insight that enables speculation about some of the mechanisms that would explain these differences (i.e. biological/hormonal changes, genes, cognitions, environmental and social factors), further experimental research is required to establish how possible mechanisms may operate. This is of importance as treatments that have been evaluated with adolescents are typically long and time-intensive (e.g., Pincus, May, Whitton, Mattis, & Barlow, 2010). To be able to deliver treatments more efficiently, with greater sensitivity and specificity, it is crucial to identify the specific mechanisms that contribute to the maintenance of specific disorders, to then be able to examine them in relation to treatment (Kazdin, 2007; Kraemer, Wilson, Fairburn, & Agras, 2002). Even if treatments do work equally well with children and adolescents (Bennett et al., 2013), it is possible that they work for different reasons.

There is evidence in adult populations that specific cognitions and behaviours are associated with specific anxiety disorders. For example, in social anxiety disorder, self-focused attention and self-critical thoughts about how one comes across in social situations have been highlighted in theory and treatment (Clark & Wells, 1995; Woody, Chambless, & Glass, 1997). Social anxiety disorder is also associated with particular 'safety behaviours' (i.e. behaviours which are invoked to promote safety but inadvertently maintain the problem) such as trying not to attract attention (Wells et al., 1999). Disorder-specific treatments involve teasing apart and addressing these processes in order to break the associated vicious cycles. However, there are not well-specified theoretical models of disorders in children and adolescents. Although researchers have begun to test the applicability of these processes in children and adolescents, so far, studies have been largely carried out with community, rather than clinical populations (e.g., Hodson, McManus, Clark, & Doll, 2008). An important area of further investigation, therefore, would be to examine whether disorder-specific processes apply during the different developmental stages of childhood and adolescence.

Papers 3 and 4 found that age moderated the relationship between anxiety status and parental intrusiveness and lack of warmth/engagement and interpretation biases, however, it remains unclear whether this holds across all anxiety disorders or whether there are disorder-specific effects. Bögels, Snieder, and Kindt (2003) found evidence for content-specific interpretation biases among symptoms of separation anxiety disorder, generalised anxiety disorder and social anxiety disorder in children and adolescents aged between 9-17 years. An earlier study, however, with children aged 8-13 years did not find

anxiety-specific biases with the same three symptom subtypes (Muris et al., 2000). The different findings may relate to differences between samples in relation to age (as well as other possible sample and task characteristics). As reviewed in Paper 2, a number of studies have examined the associations between parenting behaviours and symptoms of specific anxious disorders (e.g., Caster, Inderbitzen, & Hope, 1999; Muris, 2002; Van Zalk & Kerr, 2011; Wijsbroek, Hale, Raaijmakers, & Meeus, 2011), but the lack of direct comparisons between subtypes or disorders, however, means that it is not possible to know to what extent the associations are disorder-specific. In addition, none of the studies examined perceptions of parenting in relation to symptoms of panic disorder and/or agoraphobia. If particular, potentially 'anxiogenic' parental behaviour and interpretation biases only occur in association with specific disorders, then this would lend support to the idea of treating disorders specifically, rather than through generic treatments. Considerably larger sample sizes are required in order to be sufficiently powered to examine this question.

8.3.3 Longitudinal and experimental research

The cross-sectional nature of the studies in this thesis mean that it is not possible to know, (i) how anxiety disorders develop from childhood to adolescence and the relationship between specific clinical characteristics (e.g. particular disorders or comorbid problems) in childhood and their presentation in adolescence (Paper 1), and whether (ii) parental behaviours (Paper 3), and (iii) interpretations biases (Paper 4) maintain or are simply a response to offspring anxiety disorders anxiety disorders.

Although the findings from Paper 1 were cross-sectional, they are broadly consistent with a recent community-based longitudinal study (Copeland et al., 2014) that shows a decrease in separation anxiety disorder and increases in social anxiety disorder and panic disorder and/or agoraphobia as children move into adolescence. Relatively few studies of clinical characteristics use a prospective approach to study the course and outcome of clinically referred children and adolescents. One exception is Last, Perrin, Hersen, and Kazdin (1996), who examined children and adolescents aged 5-18 years 3 to 4 years after being treated for an anxiety disorder. While the relapse rates for the initial primary anxiety disorder were generally very low (8%), the majority of those meeting criteria for a psychiatric disorder at follow-up either continued to experience their primary anxiety disorder or if they had developed a new disorder, this was most commonly another anxiety disorder. The existing literature does not account for the finding that anxiety symptom severity increased from childhood to adolescence. This may reflect underlying biological, genetic or social factors specific to adolescence, the particular characteristics of adolescent anxiety disorders (such as the greater prevalence of social anxiety disorder as the primary disorder or the impact of having greater depressive symptoms, compared to children), that anxiety disorders at this stage of development particularly interfere with the ability to undertake important educational, social and leisure activities and achieve crucial milestones, or more longstanding anxiety, making problems more entrenched. Although it is likely to reflect a complex interplay of factors, making causality difficult to establish, further investigation using prospective methodology will be important to increase understanding of this finding.

As reported in Paper 2, the existing literature examining association between parenting behaviours and anxiety in adolescence is mainly cross-sectional. The few longitudinal studies provide preliminary evidence for anxiety arising following controlling or negative parenting behaviour (Schwartz et al., 2012; Van Zalk & Kerr, 2011; Wijsbroek et al., 2011), and for negative parenting behaviour preceding adolescent anxious symptomatology (Hale, Klimstra, Branje, Wijsbroek, & Meeus, 2013; Van Zalk & Kerr, 2011; Wijsbroek et al., 2011). However, these studies are all with community-based rather than clinical populations and, with the exception of Schwartz et al. (2012), involve self-report measures of adolescent's perceptions of parenting, rather than observations of parenting. This makes it difficult to know the extent to which these results are generalizable to a clinical population and reflect actual (rather than perceived) parenting.

In terms of interpretation biases, the cognitive model would suggest that they would both cause anxiety and then maintain it through negative feedback loops (e.g. if an individual *perceives* that other people are laughing at them because they have done something wrong, this may lead them to avoid situations where they may encounter the same reaction, reinforcing their interpretation further) (Beck & Clark, 1997). To date, there are no studies examining interpretation biases longitudinally in an adolescent population. Further investigation to clarify the direction of effects is necessary, involving experimental methods, in combination with prospective longitudinal research.

8.3.4 Undertaking research with referred, clinical samples

As demonstrated in Paper 2, the majority of studies examining processes related to anxiety in adolescence, such as parenting behaviours, are based on community or analogue populations. This can be a helpful starting point as it enables researchers to develop models that are generalizable to the population at large, rather than a minority seeking help, relatively unaffected by confounding factors, such as treatment types and treatment effects, duration of prior treatment, and comorbidity, and allows more research to be conducted (Abramowitz et al., 2014). However, it remains unclear to what extent findings can be generalised to clinical populations. If ultimately this research is intended to develop an understanding of, and improve treatments for, adolescents referred to clinical services, then it is crucial that research is also carried out with these same populations.

8.3.5 Developing and evaluating adolescent-specific treatments

The finding that adolescents with anxiety disorders differ from their younger counterparts on a range of factors (including their clinical characteristics, cognitions and parenting) underlines the necessity of designing and providing treatments that adequately address adolescents' specific characteristics. As outlined earlier, developing a clear understanding of cognitions and behaviours that cause and maintain anxiety disorders in adolescents is critical to inform treatment design. This would then enable evaluation through feasibility studies and subsequent randomised controlled trials.

Given the finding that social anxiety disorder is associated with poorer treatment outcomes than other anxiety disorders, and that the National Institute for Health and Care

Excellence (NICE) (2013) guidelines for older adolescents are currently based upon clinical opinion rather than evidence, a comparison of disorder-specific cognitive therapy for social anxiety adapted for adolescents (e.g., based on Clark & Wells, 1995) to the existing generic treatment approaches (e.g., Kendall, 2002) is clearly warranted. Similarly, building on recent modularised treatment approaches (e.g., Weisz et al., 2012), developing and evaluating treatments that take account of comorbid problems, such as depressive symptoms or school refusal, may also be worthwhile.

8.3.6 Exploring other factors likely to impact on outcomes from psychological treatments

There are a number of areas where differences between children and adolescents with anxiety disorders have not yet been examined. Studies examining the association between anxiety and cognitive processes other than interpretation biases, such as attention (i.e., orientation to threat cues) (Roy et al., 2008; Vasey, Daleiden, Williams, & Brown, 1995), have not examined differences among adolescents with and without anxiety disorders, compared to children with and without anxiety disorders. There are also multiple facets of the social environment (e.g., the role of stressors, particularly in relation to education, peer relationships and victimisation) and genetic factors (e.g., the international multi-site “Genes for Treatment” study; Eley et al., 2012) that are likely to impact on outcomes from psychological treatments that have not been examined in this way.

Investigating this through longitudinal and experimental design, as well as cross-sectional

studies, would provide us with a much greater understanding of the role of specific developmental factors in the cause and maintenance of anxiety disorders in adolescents.

8.3.7 Research implications for younger children

The results of Paper 1 showed that, compared to adolescents, children with a primary anxiety disorder were significantly more likely to be diagnosed with separation anxiety disorder than adolescents as either the primary anxiety disorder or anywhere in the diagnostic profile. Notably, however, children and adolescents did not significantly differ in terms of the presence of social anxiety disorder anywhere in the diagnostic profile, or the presence of generalised anxiety disorder or specific phobias, as either the primary or a secondary anxiety disorder. This thesis examined the clinical, parenting and cognitive characteristics of children aged 7-10 years as a comparison for adolescents. However, evidence suggests that anxiety disorders often present in children younger than seven (Shamir-Essakow, Ungerer, & Rapee, 2005), and so a necessary next step is to better understand the clinical characteristics of these younger children, in contrast to older age groups. In Paper 3, in contrast to the findings with adolescents, parents of children with anxiety disorders showed a general pattern of responding with warmth and (non-intrusive) encouragement. This was surprising, given the large body of research showing an association between higher levels of child anxiety and parental intrusiveness and rejection in studies which include children and young people from large age ranges (McLeod et al., 2007; van der Bruggen et al., 2008). Similarly, in Paper 4, the lack of a significant difference between the children with anxiety disorders and non-anxious children for threat

interpretation and perceptions of coping, while consistent with the findings from some studies of (Creswell et al., 2014; Waters, Craske, et al., 2008), was discrepant with findings from other studies (e.g., Alkozei et al., 2014; Bögels et al., 2003; Waters, Wharton, et al., 2008). These conflicting findings, in relation to both parenting behaviour and children's cognitive biases, may reflect differences in the distribution of child age within the broad age categories included in the existing literature. This suggests that the research recommendations for adolescents with anxiety disorders also apply to children with anxiety disorders, i.e. the importance of taking account of age and examining differences between still narrower age bands.

8.4 Clinical Implications

It has been argued that the major biopsychosocial changes of adolescence make this a developmental period in which intervening clinically could be expected to have an especially lasting impact (Holmbeck et al., 2000; Holmbeck & Kendall, 1991). However, the evidence to date from the most commonly evaluated treatment for anxiety disorders in children and adolescence (CBT) suggests that adolescents with anxiety disorders do not have significantly better treatment outcomes than children (Bennett et al., 2013), and if anything, they may be more likely to retain their anxiety disorder at the end of treatment (Ginsburg et al., 2011). These findings highlight the necessity of improving understanding of how to improve the effectiveness of psychological treatments for adolescents with anxiety disorders.

8.4.1 The use of CBT for adolescents with anxiety disorders

The first question must surely be whether CBT is an appropriate treatment for adolescents with anxiety disorders. The finding from Paper 4 that, compared to non-anxious adolescents, adolescents with anxiety disorders show significantly higher levels of threat interpretation, anticipated negative emotion and avoidance, provides preliminary support for the notion that a treatment that focuses on addressing interpretation biases and avoidant behaviour, such as CBT, is warranted (e.g., Micco, Choate-Summers, Ehrenreich, Pincus, & Mattis, 2007), and is consistent with the suggestion that key aspects of adult cognitive models of anxiety are applicable to adolescents. Further research is required, however, to establish that interpretation biases have a causal or maintaining role in adolescent anxiety.

Even if the general principles of CBT do apply to adolescents, in order to optimise treatment outcome and efficiency it will be important to take in to account the specific clinical characteristics of adolescents with anxiety disorders, as identified in Paper 1. Of course it is not possible to know whether the age of the young person is responsible for poorer treatment outcome or clinical characteristics associated with this age group (or both). Nevertheless, the finding that adolescents with anxiety disorders differ from anxious children in a number of ways (i.e., being more likely to have social anxiety disorder as the primary anxiety disorder, comorbid mood disorders, difficulties attending school, greater symptom severity), and that all these characteristics have been found to be associated with reduced remission following treatment (e.g., Ginsburg et al., 2011; Hudson et al., 2013; Layne, Bernstein, Egan, & Kushner, 2003), suggests that adapting treatments designed for

children to make the materials more 'adolescent-friendly' is unlikely to sufficiently meet the needs of adolescents and underlines the importance of designing and providing treatments that adequately address adolescents' specific characteristics.

8.4.2 Developing treatments that address adolescent-specific clinical characteristics

A number of studies have now found that children and adolescents with social anxiety disorder have poorer treatment outcomes (e.g., Ginsburg et al., 2011; Hudson et al., 2013). Although social anxiety disorder-specific treatment has not been directly compared to generic anxiety programmes for children and adolescents, there is some evidence that overall effect sizes for disorder-specific treatment are larger than for generic CBT treatments (Mayo-Wilson et al., 2013; Reynolds, Wilson, Austin, & Hooper, 2012). In addition, some of the same psychological maintenance mechanisms found in adults appear to apply among socially anxious adolescents (e.g., Hodson et al., 2008). This has led NICE (2013) to recommend that clinicians consider using psychological interventions developed for adults (i.e., Clark & Wells, 1995) for young people (typically aged 15 years and older) who have the necessary cognitive and emotional capacity, although this is based on clinical opinion rather than evidence. Important areas of further investigation, therefore, will be to identify specific mechanisms that cause and maintain social anxiety disorder in adolescence and to develop treatments that are evaluated in comparison to generic anxiety treatment in this age group.

While it is likely that clinicians already make adaptations to treatment for adolescent clients, NICE (2013) emphasise the importance of using evidence-based treatment manuals,

and adherence to these manuals being monitored and evaluated in supervision. Although there are existing manuals for generic anxiety treatment in adolescents (e.g., 'The C.A.T. project' and the 'Cool Kids "Chilled" adolescent anxiety program'; Kendall, 2002; Rapee et al., 2006), and panic disorder ('Riding the Wave'; Pincus, Ehrenreich, & Mattis, 2008), there are not yet manuals for adolescent-specific treatment of most anxiety disorders, such as social anxiety disorder. Further treatments must be designed (manualised and subsequently evaluated) to take account of specific disorders and also common comorbid problems, such as depressive symptoms or school refusal (e.g., using a modularised treatment approach, such as Weisz et al., 2012). This would then enable clinicians to continue to deliver evidence-based treatment, rather than going 'off-protocol' when they encounter specific disorders or comorbid difficulties.

The finding that adolescents' anxiety symptoms are more severe than those of anxious children has not been addressed in the existing literature and could be explained by many different possible factors. This makes it more challenging to be clear about what this means for treatment. It is possible that treatment that is disorder-specific and targets comorbidity, as suggested above, would be sufficient to address greater symptom severity. It may also be helpful to provide a greater number of sessions (Rapee et al., 2013), but it would be important to establish the key components of treatment to ensure that the additional time is used effectively. If greater symptom severity is a result of longstanding disorders that were not treated successfully in childhood, this has wider implications for increasing access to effective earlier interventions for anxiety disorders. Indeed, there is evidence that the majority of young people with anxiety disorders do not access clinical

services (Merikangas et al., 2011), and this is presumed to be related to a lack of awareness and knowledge, concerns about stigma of accessing services, competing family time commitments, and a lack of appropriate, timely services and trained professionals. It will be important to better understand the factors involved in limiting early access to effective treatments in order to reduce the number of young people who develop longstanding and potentially more severe and treatment-resistant disorders.

Finally, Papers 2 and 3 identified associations between adolescent anxiety disorders and parenting factors. Although the findings would seem to suggest that a focus on increasing parental warmth and engagement and decreasing parental intrusiveness may be indicated for adolescents, the cross-sectional design of the study means that it is not possible to be clear about the nature of the relationship between parenting and adolescent anxiety. If the relationship is bi-directional, or if negative parenting behaviour results from adolescent symptomatology, as might be suggested by recent prospective studies (Hale et al., 2013; Van Zalk & Kerr, 2011; Wijsbroek et al., 2011), then treating the adolescent's anxiety disorder may actually have a positive effect on parenting behaviours without a specific parenting intervention being necessary. Further experimental research to establish causality is required before committing additional resources to targeting parenting factors within treatment.

Although the results from the CAMS trial indicate that adolescents with anxiety disorders have poorer treatment outcomes than their younger counterparts (Ginsburg et al., 2011), it is not clear whether this is related to the clinical characteristics associated with this age group or factors that are specific to the adolescent developmental period. As

outlined above, it may be that developing treatments that comprehensively address clinical characteristics, such as social anxiety disorder, greater symptom severity and comorbid depression, will be effective in improving remission rates. Clearly treatments must also be acceptable to adolescents, but it may be possible to further improve treatment outcome by addressing factors that are specific to this age range, such as the adolescent social environment. For example, peer relationships are of great importance in adolescence (Furman & Buhrmester, 1985) and yet, treatments for adolescents have not typically taken this into account. Given the increasing use of online treatments, one possible avenue for future treatment development could involve creating online group treatments in order to examine whether being part of a peer group improves adolescents' willingness to engage in key parts of treatment, such as exposure.

8.4.3 Clinical implications for younger children

Paper 1 showed that, compared to adolescents with anxiety disorders, children with anxiety disorders had less severe symptoms, lower levels of comorbid mood disorders and less difficulty attending school. Although we know very little about how anxiety disorders develop from childhood into adolescence, this appears to suggest that if we can successfully treat anxiety disorders within this age group, this may circumvent more serious problems later on in adolescence. Notably, the rates of generalised anxiety disorder and specific phobias (as either primary or secondary disorders), and social anxiety disorder (anywhere across the diagnostic profile) were broadly similar across these age ranges. If these

disorders persist from childhood into adolescence, then again this would advocate intervening as early as possible with the hope that treatment effects persist in the longer term. As would be expected, separation anxiety disorder was found to be more common in children than adolescents. This disorder is commonly treated with general anxiety treatment approaches (e.g., March, Spence, & Donovan, 2009; Thirlwall et al., 2013), and more recently, with a disorder-specific treatment (Schneider et al., 2011), with good outcomes for both treatments.

The finding from Paper 3 that parents of children with anxiety disorders appeared to show a general pattern of responding to children with anxiety disorders with warmth and (non-intrusive) encouragement suggests that with children aged 7-10 years, at least, a focus on specific parenting behaviours, such as intrusiveness, may be unwarranted. If parents are typically responding in the ways advocated in family based treatments, this may help explain why family treatments focused specifically on changing parenting behaviours do not necessarily add significant benefits in terms of treatment outcomes for children with anxiety disorders in the study age range (e.g., Reynolds et al., 2012). Of course, this is not to say that parents should not be involved in treatment. There is a good deal of evidence demonstrating the effectiveness of parent-focused approaches, especially among younger children (e.g., Cartwright-Hatton et al., 2011; Donovan & March, 2014; Waters, Ford, Wharton, & Cobham, 2009). However, the findings suggest that when parents are involved in treatment, the focus should be on the key components of CBT for children so that they learn how to support their child in activities such as exposure.

Finally, Paper 4 demonstrated that children with anxiety disorders aged 7-10 years, compared to their non-anxious peers, did not show significantly greater threat interpretations, negative emotion or reduced expectations around coping. This suggests that, at some point generally after the age of 10 years, children are able to inhibit these biases, perhaps as their thinking styles become more stable and global and as they develop a greater body of experiences to draw from to inform their thinking (Nolen-Hoeksema, Girgus, & Seligman, 1992). There was, however, evidence for higher levels of avoidance amongst children with anxiety disorders, compared to those without. The clinical implications of these findings are that for children with anxiety disorders aged 7-10 years, there may be limited benefit in addressing interpretation biases in treatment, and that behavioural strategies addressing avoidance (e.g. exposure or behavioural experiments) should be a key part of treatment.

8.5 Conclusion

Evidence from normative developmental research suggests that adolescence is a distinct developmental phase, characterised by extensive changes in biology, brain development, genetic influences, cognitive, social and family functioning. The findings of the studies in this thesis are consistent with this view and show that adolescents with anxiety disorder from a referred, clinical population differ from their younger counterparts in a number of meaningful ways. Specifically, adolescents with anxiety disorders, compared to children with anxiety disorders, had more severe anxiety symptoms, more frequent primary diagnoses of social anxiety disorder, diagnoses and symptoms of mood disorders,

and irregular school attendance. An examination of the associations between anxiety disorder status and parenting behaviour in children and adolescents showed that parents of adolescents generally showed significantly lower levels of expressed anxiety, intrusiveness and warm engagement than parents of children. Furthermore, offspring age moderated the association between anxiety disorder status and parenting behaviours, in that parents of adolescents with anxiety disorders showed higher intrusiveness and lower warm engagement than parents of non-anxious adolescents, but no significant differences were found between anxious and non-anxious children. This was consistent with the existing literature, although with stronger effects for parental lack of warmth than other, mainly community-based, studies have found. Finally, in relation to interpretation biases, children and adolescents with anxiety disorders showed significantly higher levels of threat interpretation and avoidant strategies than non-anxious children and adolescents. However, age significantly moderated the effect of anxiety disorder status, in that adolescents with anxiety disorders showed significantly higher levels of threat interpretation and associated negative emotion than non-anxious adolescents, but, again, there were no significant differences between anxious and non-anxious children.

Taken together, these results underline the importance of taking age and development into account, grouping children and adolescents into cohorts based on distinct developmental stages, in order to further understanding of developmental processes associated with anxiety disorders throughout childhood and adolescence. Further research should (i) examine differences between adolescents and children with and without anxiety disorders in relation to other important characteristics, such as cognitive processes,

social and environmental factors and genetics, (ii) examine differences between still narrower age bands (i.e. early, mid and late adolescence), (iii) conduct experimental and longitudinal research to establish causal relationships, (iv) identify the specific mechanisms (e.g. cognitions or behaviours) that are of importance at different developmental stages in relation to specific anxiety disorders, (v) undertake research with referred clinical samples, and (iv) develop and evaluate adolescent-specific treatments that address the specific characteristics of adolescents with anxiety disorders.

8.6 References

- Abramowitz, J. S., Fabricant, L. E., Taylor, S., Deacon, B. J., McKay, D., & Storch, E. A. (2014). The relevance of analogue studies for understanding obsessions and compulsions. *Clinical Psychology Review, 34*(3), 206-217. doi: 10.1016/j.cpr.2014.01.004
- Alkozei, A., Cooper, P. J., & Creswell, C. (2014). Emotional reasoning and anxiety sensitivity: Associations with social anxiety disorder in childhood. *Journal of Affective Disorders, 152*, 219-228. doi: 10.1016/j.jad.2013.09.014
- Amir, N., Beard, C., & Bower, E. (2005). Interpretation bias and social anxiety. *Cognitive Therapy and Research, 29*(4), 433-443 doi: 10.1007/s10608-005-2834-5
- Barrett, P. M., Rapee, R. M., & Dadds, M. R. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology, 64*, 333-342.
- Beck, A. T., & Clark, D. A. (1997). An information processing model of anxiety: Automatic and strategic processes. *Behaviour Research and Therapy, 35*(1), 49-58.
- Bennett, K., Manassis, K., Walter, S. D., Cheung, A., Wilansky-Traynor, P., Diaz-Granados, N., . . . Barrett, P. M. (2013). Cognitive behavioral therapy age effects in child and adolescent anxiety: An individual patient data metaanalysis. *Depression and Anxiety, 30*(9), 829-841. doi: 10.1002/da.22099
- Berman, S. L., Weems, C. F., Silverman, W. K., & Kurtines, W. M. (2000). Predictors of outcome in exposure-based cognitive and behavioral treatments for phobic and anxiety disorders in children. *Behavior Therapy, 31*, 713-731.

- Bögels, S. M., Snieder, N., & Kindt, M. (2003). Specificity of dysfunctional thinking in children with symptoms of social anxiety, separation anxiety and generalised anxiety. *Behaviour Change*, *20*, 160-169. doi: 10.1375/behc.20.3.160.24836
- Cartwright-Hatton, S., McNally, D., Field, A. P., Rust, S., Laskey, B., Dixon, C., . . . Woodham, A. (2011). A new parenting-based group intervention for young anxious children: Results of a randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *50*, 242-251. doi: 10.1016/j.jaac.2010.12.015
- Caster, B., Inderbitzen, M., & Hope, D. (1999). Relationship between youth and parent perceptions of family environment and social anxiety. *Journal of Anxiety Disorders*, *13*(3), 237-251.
- Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: The role of control in early environment. *Psychology Bulletin*, *124*, 3-21.
- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. Liebowitz, D. Hope & F. Schneier (Eds.), *Social phobia: Diagnosis, assessment and treatment* (pp. 69–93). New York: Guilford Press.
- Collins, W. A., Madsen, S. D., & Susman-Stillman, A. (2002). Parenting during middle childhood. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (Vol. 1, pp. 73-101). London: Lawrence Erlbaum Associates.
- Copeland, W. E., Angold, A., Shanahan, L., & Costello, E. J. (2014). Longitudinal patterns of anxiety from childhood to adulthood: The great smoky mountains study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *53*(1), 21–33.

- Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives of General Psychiatry*, *60*(8), 837-844. doi: 10.1001/archpsyc.60.8.837
- Creswell, C., Murray, L., & Cooper, P. J. (2014). Interpretation and expectation in childhood anxiety disorders: Age effects and social specificity. *Journal of Abnormal Child Psychology*, *42*, 453-465. doi: 10.1007/s10802-013-9795-z
- Donovan, C. L., & March, S. (2014). Online CBT for preschool anxiety disorders: A randomised control trial. *Behaviour Research and Therapy*, *58*, 24-35. doi: 10.1016/j.brat.2014.05.001
- Eberly, M. B., & Montemayor, R. (1999). Adolescent affection and helpfulness toward parents: A two-year follow-up. *Journal of Early Adolescence*, *19*, 226-248.
- Eley, T. C., Hudson, J. L., Creswell, C., Tropeano, M., Lester, K. J., Cooper, P. J., . . . Rapee, R. M. (2012). Therapygenetics: the 5HTTLPR and response to psychological therapy. *Molecular Psychiatry*, *17*(3), 236.
- Feldman, S. S., & Elliott, G. R. (Eds.). (1990). *At the threshold: The developing adolescent*. Cambridge, MA.: Harvard University Press.
- Giedd, J. N., Keshavan, M., & Paus, T. (2008). Why do many psychiatric disorders emerge during adolescence? *Nature Reviews Neuroscience*, *9*(12), 947-957.
- Ginsburg, G. S., Sakolsky, D., Piacentini, J., Walkup, J. T., Coffey, K. A., Keeton, C. P., . . . McCracken, J. T. (2011). Remission after acute treatment in children and adolescents with anxiety disorders: Findings from the CAMS. *Journal of Consulting and Clinical Psychology*, *79*(6), 806-813. doi: 10.1037/a0025933

- Grüner, K., Muris, P., & Merckelbach, H. (1999). The relationship between anxious rearing behaviours and anxiety disorders symptomatology in normal children. *Journal of Behavior Therapy and Experimental Psychiatry, 30*, 27-35.
- Hale, W. W., Klimstra, T. A., Branje, S. J. T., Wijsbroek, S. A. M., & Meeus, W. H. J. (2013). Is adolescent generalized anxiety disorder a magnet for negative parental interpersonal behaviors? *Depression and Anxiety, 30*, 849-856. doi: 10.1002/da.22065
- Hodson, K. J., McManus, F. V., Clark, D. M., & Doll, H. (2008). Can Clark and Wells' (1995) Cognitive Model of Social Phobia be Applied to Young People? *Behavioural and Cognitive Psychotherapy, 36*(4), 449-461. doi: 10.1017/S1352465808004487
- Holmbeck, G. N., Colder, C., Shapera, W., Westhoven, V., Kenealy, L., & Updegrave, A. (2000). Working with adolescents: Guides from developmental psychology. In P. C. Kendall (Ed.), *Child and adolescent therapy: Cognitive-behavioral procedures* (pp. 334-385). New York: Guilford Press.
- Holmbeck, G. N., & Kendall, P. C. (1991). Clinical-childhood-developmental interface: Implications for treatment. In P. R. Martin (Ed.), *Handbook of behavior therapy and psychological science: An integrative approach* (pp. 73-99). New York: Elmsford.
- Hudson, J. L., Lester, K. J., Lewis, C. M., Tropeano, M., Creswell, C., Collier, D. A., . . . Eley, T. C. (2013). Predicting outcomes following cognitive behaviour therapy in child anxiety disorders: the influence of genetic, demographic and clinical information. *Journal of Child Psychology and Psychiatry, 54*(10), 1086–1094.

- Hudson, J. L., & Rapee, R. M. (2001). Parent-child interactions and anxiety disorders: an observational study. *Behaviour Research and Therapy*, *39*, 1411-1427. doi: 10.1016/s0005-7967(00)00107-8
- Kazdin, A. E. (2007). Mediators and mechanisms of change in psychotherapy research. *Annual Review of Clinical Psychology*, *3*, 1-27.
- Kendall, P. C. (2002). *The C.A.T. project manual: For the cognitive-behavioral treatment of anxious adolescents: Workbook*.
- Kendall, P. C., Compton, S. N., Walkup, J. T., Birmaher, B., Albano, A. M., Sherrill, J., . . . Piacentini, J. (2010). Clinical characteristics of anxiety disordered youth. *Journal of Anxiety Disorders*, *24*(3), 360-365. doi: 10.1016/j.janxdis.2010.01.009
- Kraemer, H. C., Wilson, G. T., Fairburn, C. G., & Agras, W. S. (2002). Mediators and moderators of treatment effects in randomized clinical trials. *Archives of General Psychiatry*, *59*(10), 877-883.
- Larson, R. W., Moneta, G., Richards, M. H., & Wilson, S. (2002). Continuity, stability and changes in daily emotional experience across adolescence. *Child Development*, *73*, 1151-1165.
- Larson, R. W., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: changing developmental contexts. *Child Development*, *62*, 284-300.
- Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1996). A prospective study of childhood anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, *35*(11), 1502-1510.

- Laursen, B., Coy, K. C., & Collins, W. A. (1998). Reconsidering changes in parent-child conflict during adolescence: A meta-analysis. *Child Development, 69*, 817-832.
- Layne, A. E., Bernstein, G. A., Egan, E. A., & Kushner, M. G. (2003). Predictors of treatment response in anxious-depressed adolescents with school refusal. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(3), 319-326.
- March, S., Spence, S. H., & Donovan, C. L. (2009). The efficacy of an internet-based cognitive-behavioral therapy intervention for child anxiety disorders. *Journal of Pediatric Psychology, 34*(5), 474-487.
- Mathews, A., & Mackintosh, B. (2000). Induced emotional interpretation bias and anxiety. *Journal of Abnormal Psychology, 109*(4), 602-615. doi: 10.1037/0021-843X.109.4.602
- Mayo-Wilson, E., Braidwood, R., Kew, K., Creswell, C., Cartwright-Hatton, S., Clark, D. M., & Piling, S. (2013). *Social anxiety disorder in children and young people: A systematic review and metaanalysis of psychological interventions*. Under review.
- McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review, 27*, 155-172.
- Merikangas, K. R., He, J.-P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., . . . Olfson, M. (2011). Service Utilization for Lifetime Mental Disorders in U.S. Adolescents: Results of the National Comorbidity Survey–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry, 50*(1), 32-45.

- Micco, J. A., Choate-Summers, M. L., Ehrenreich, J. T., Pincus, D. B., & Mattis, S. G. (2007). Identifying efficacious treatment components of panic control treatment for adolescents: A preliminary examination. *Child & Family Behavior Therapy, 29*, 1-23.
- Miers, A. C., Blöte, A. W., Bögels, S. M., & Westenberg, P. M. (2008). Interpretation bias and social anxiety in adolescents. *Journal of Anxiety Disorders, 22*, 1462–1471. doi: 10.1016/j.janxdis.2008.02.010
- Muris, P. (2002). Parental rearing behaviors and worry of normal adolescents. *Psychological Reports, 91*(2), 428-430.
- Muris, P., Kindt, M., Bögels, S. M., Merckelbach, H., Gadet, B., & Moulart, V. (2000). Anxiety and threat perception abnormalities in normal children. *Journal of Psychopathology and behavioral assessment, 22*(2), 183-199.
- NICE. (2013). Social anxiety disorder: recognition, assessment and treatment (CG159).
- Nolen-Hoeksema, S., Girgus, J. S., & Seligman, M. E. (1992). Predictors and consequences of childhood depressive symptoms: A 5-year longitudinal study. *Journal of Abnormal Psychology, 101*, 405-422. doi: 10.1037/0021-843X.101.3.405
- Pincus, D. B., Ehrenreich, J. T., & Mattis, S. G. (2008). *Mastery of anxiety and panic for adolescents: Riding the wave (therapist guide)*. Oxford: Oxford University Press.
- Pincus, D. B., May, J. E., Whitton, S. W., Mattis, S. G., & Barlow, D. H. (2010). Cognitive-behavioral treatment of panic disorder in adolescence. *Journal of Clinical Child and Adolescent Psychology, 39*(5), 638-649. doi: 10.1080/15374416.2010.501288
- Rapee, R. M., Lyneham, H. J., Hudson, J. L., Kangas, M., Wuthrich, V. M., & Schniering, C. A. (2013). Effect of comorbidity on treatment of anxious children and adolescents:

- results from a large, combined sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52(1), 47-56.
- Rapee, R. M., Lyneham, H. J., Schniering, C. A., Wuthrich, V., Abbot, M. A., Hudson, J. L., & Wignall, A. (2006). *Cool Kids "chilled" adolescent anxiety program*. Sydney: Centre for Emotional Health, Macquarie University.
- Reynolds, S., Wilson, C., Austin, J., & Hooper, L. (2012). Effects of psychotherapy for anxiety in children and adolescents: A meta-analytic review. *Clinical Psychology Review*, 32, 251–262.
- Roy, A. K., Vasa, R. A., Bruck, M., Mogg, K., Bradley, B. P., Sweeney, M., . . . Team, C. (2008). Attention bias toward threat in pediatric anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47(10), 1189-1196.
- Schneider, S., Blatter-Meunier, J., Herren, C., Adornetto, C., In-Albon, T., & Lavallee, K. (2011). Disorder-specific cognitive-behavioral therapy for separation anxiety disorder in young children: A randomized waiting-list-controlled trial. *Psychotherapy and Psychosomatics*, 80(4), 206.
- Schwartz, O. S., Dudgeon, P., Sheeber, L. B., Yap, M. B. H., Simmons, J. G., & Allen, N. B. (2012). Parental behaviors during family interactions predict changes in depression and anxiety symptoms during adolescence. *Journal of Abnormal Child Psychology*, 40, 59-71.
- Shamir-Essakow, G., Ungerer, J. A., & Rapee, R. M. (2005). Attachment, behavioral inhibition, and anxiety in preschool children. *Journal of Abnormal Child Psychology*, 33(2), 131-143.

- Spear, L. (2010). *The behavioral neuroscience of adolescence*. New York: Norton.
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*, 1-19.
- Steinberg, L., & Silk, J. S. (2002). Parenting adolescents. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (Second ed.). London: Lawrence Erlbaum Associates.
- Strauss, C. C., Lease, C. A., Last, C. G., & Francis, G. (1988). Overanxious disorder: An examination of developmental differences. *Journal of Abnormal Psychology, 16*(4), 433-443.
- Thirlwall, K., Cooper, P. J., Karalus, J., Voysey, M., Willetts, L., & Creswell, C. (2013). Treatment of child anxiety disorders via guided parent-delivered cognitive-behavioural therapy: randomised controlled trial. *British Journal of Psychiatry, 203*, 436-444. doi: 10.1192/bjp.bp.113.126698
- van der Bruggen, C. O., Stams, G. J. J. M., & Bögels, S. M. (2008). Research review: The relation between child and parent anxiety and parental control: a meta-analytic review. *Child Psychology and Psychiatry, 49*, 1257-1269.
- Van Zalk, N., & Kerr, M. (2011). Shy adolescents' perceptions of parents' psychological control and emotional warmth: Examining bidirectional links. *Merrill-Palmer Quarterly-Journal of Developmental Psychology, 57*, 375-401.
- Vasey, M. W., Daleiden, E. L., Williams, L. L., & Brown, L. M. (1995). Biased attention in childhood anxiety disorders: A preliminary study. *Journal of Abnormal Child Psychology, 23*(2), 267-279.

- Verhoeven, M., Bögels, S. M., & van der Bruggen, C. C. (2012). Unique roles of mothering and fathering in child anxiety: Moderation by child's age and gender. *Journal of Child and Family Studies, 21*, 331-343.
- Waters, A. M., Craske, M. G., Bergman, R. L., & Treanor, M. (2008). Threat interpretation bias as a vulnerability factor in childhood anxiety disorders. *Behaviour Research and Therapy, 46*, 39-47. doi: 10.1016/j.brat.2007.10.002
- Waters, A. M., Ford, L. A., Wharton, T. A., & Cobham, V. E. (2009). Cognitive-behavioural therapy for young children with anxiety disorders: Comparison of a child + parent condition versus a parent only condition. *Behaviour Research and Therapy, 47*, 654-662. doi: 10.1016/j.brat.2009.04.008
- Waters, A. M., Wharton, T. A., Zimmer-Gembeck, M. J., & Craske, M. G. (2008). Threat-based cognitive biases in anxious children: Comparison with non-anxious children before and after cognitive behavioural treatment. *Behaviour Research and Therapy, 46*, 358–374. doi: 10.1016/j.brat.2008.01.002
- Weisz, J. R., Chorpita, B. F., Palinkas, L. A., Schoenwald, S. K., Miranda, J., Bearman, S. K., . . . Martin, J. (2012). Testing standard and modular designs for psychotherapy treating depression, anxiety, and conduct problems in youth: A randomized effectiveness trial. *Archives of General Psychiatry, 69*(3), 274-282.
- Weisz, J. R., & Hawley, K. M. (2002). Developmental factors in the treatment of adolescents. *Journal of Consulting and Clinical Psychology, 70*(1), 21-43.

- Wells, A., Clark, D. M., Salkovskis, P., Ludgate, J., Hackmann, A., & Gelder, M. G. (1999). Social phobia: The role of in-situation safety behaviours in maintaining anxiety and negative beliefs. *Behavior Therapy, 26*, 153-161.
- Wijsbroek, S. A. M., Hale, W. W., Raaijmakers, Q. A. W., & Meeus, W. H. J. (2011). The direction of effects between perceived parental behavioral control and psychological control and adolescents' self-reported GAD and SAD symptoms. *European Child & Adolescent Psychiatry, 20*, 361-371.
- Woody, S. R., Chambless, D. L., & Glass, C. R. (1997). Self-focused attention in the treatment of social phobia. *Behaviour Research and Therapy, 35*(2), 117-129.

Chapter 9 Appendices

9.1 Appendix 1. NRES Ethics Approval Letters

NRES approval for adolescents with anxiety disorders and non-anxious adolescents



NRES Committee London - Brent

Room 019, Level 7 Maternity Block
Northwick Park Hospital
Watford Road
Harrow
Middlesex
HA1 3UJ

Telephone: 020 8869 3775
Facsimile: 020 8869 5222

08 February 2012

Dr Polly Waite
MRC Clinical Research Training Fellow
University of Reading
School of Psychology and Clinical
Language Sciences, University of Reading,
Whiteknights, Reading
RG6 6AL

Dear Dr Waite

Study title: **An investigation of parent-child interactions in anxious adolescents and a pilot randomised controlled trial of an internet-based treatment**

REC reference: **12/LO/0119**

The Research Ethics Committee reviewed the above application at the meeting held on 30 January 2012. Thank you for attending to discuss the study.

Ethical opinion

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

- An assent form is required for children under the age of 16 years.
- Committee was unsure as to whether parents' intervention would make it better or worse for their children.
- The Committee felt that the £15 voucher might be offered to all participants.
- Members will ask the researcher if children are asked if they wish to be videoed.
- Members would like clarity on how referrals are obtained as at present is unclear.
- The Committee would like further information on the tasks being carried out.

Dr Waite joined the meeting. Discussion took place as follows.

- a. The Chair asked you if this was an NHS study. You said it is partially funded by the NHS and MRC.
- b. The Chair asked if this was the normal pathway to elect research or the standard care route if preferred. You informed members that this is the pathway for adolescents, and would be for other referrals in the next NHS contracting round.
- c. You were asked what assessments take place, you explained that you would send out screening information first to adolescents then questionnaires are

- sent if interested in participating in the study.
- d. The Chair asked if there was a blind assessment. You informed the Committee that there are trained assessors in a separate part of the clinic, and consent would be given individually.
 - e. The Chair asked why non-anxious control group received £15. You explained that the active group gives less time than the control group. You also explained the range of tasks for adolescents and parents.
 - f. The Chair asked you to check the NRES website for guidance on the assent form.

Ethical review of research sites

NHS Sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non NHS sites

The Committee has not yet been notified of the outcome of any site-specific assessment (SSA) for the non-NHS research site(s) taking part in this study. The favourable opinion does not therefore apply to any non-NHS site at present. I will write to you again as soon as one Research Ethics Committee has notified the outcome of a SSA. In the meantime no study procedures should be initiated at non-NHS sites.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

1. Please provide an assent form for children - 16 years and under.
2. Explain the ten week wait list on the patient information sheet.

It is responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

You should notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Confirmation should also be provided to host organisations together with relevant documentation

Approved documents

The documents reviewed and approved at the meeting were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering Letter	Letter from Polly Waite	06 January 2012
Evidence of insurance or indemnity		06 July 2012
GP/Consultant Information Sheets	1	03 January 2012
Investigator CV		
Letter from Sponsor		06 July 2012
Letter of invitation to participant	1	03 January 2012
Other: Recruitment advertisement	1	03 January 2012
Other: Flowchart	1	03 January 2012
Other: Interviews	1	03 January 2012
Other: Catherine Creswell CV		
Other: Peter Cooper Cv		
Participant Consent Form	1	03 January 2012
Participant Information Sheet	1	03 January 2012
Protocol		
Questionnaire: Validated	1	03 January 2012
Questionnaire: Non-Validated	1	03 January 2012
REC application		06 January 2012
Referees or other scientific critique report	1	03 January 2012

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

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

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports

- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

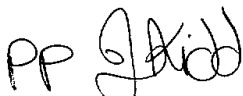
You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

12/LO/0119 **Please quote this number on all correspondence**

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

Yours sincerely



Dr John Keen
Chair

Email: Julie.kidd@nwlh.nhs.uk

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments

*Copy to: Dr Mike Proven
N/A. R&D contact not specified in database.*

NRES Approval for children with anxiety disorders (recruited through the MaCh trial)



National Research Ethics Service

Berkshire Research Ethics Committee

Building L27
University of Reading
London Road
Reading
RG1 5AQ

13 November 2007

Telephone: 0118 918 0556
Facsimile: 0118 918 0559

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: Treatment of Child Anxiety Disorder in the Context of Maternal Anxiety: A Randomised Controlled Trial
REC reference number: 07/H0505/156

Thank you for your letter of 05 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:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application		14 August 2007
Investigator CV		08 August 2007
Protocol	1	01 August 2007
Covering Letter		08 August 2007
Summary/Synopsis	1	01 August 2007

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Letter from Sponsor		14 August 2007
Interview Schedules/Topic Guides	1	01 August 2007
Questionnaire: Social Communication questionnaire for Children (SCQ): Parent report	1.2	29 August 2007
Questionnaire: Spence Children's Anxiety Scale (Parent Report)	1.2	29 August 2007
Questionnaire: Spence Children's Anxiety Scale	1.2	29 August 2007
Questionnaire: Teacher report: Child adjustment to school	1.2	29 August 2007
Questionnaire: Spence Children's Anxiety Scale (Teacher Report)	1.2	29 August 2007
Questionnaire: Mattick-Social Phobia Scale	1.2	29 August 2007
Questionnaire: Penn-State Worry	1.2	29 August 2007
Questionnaire: Depression, Anxiety, Stress Scales (DASS21T)	1.2	29 August 2007
Questionnaire: Child Anxiety Impact Scale (CAIS-C)	1.2	29 August 2007
Questionnaire: Child Anxiety Impact Scale (CAIS-P)	1.2	29 August 2007
Questionnaire: Mattick-Social Interaction Assessment Scale	1.2	01 January 1900
GP/Consultant Information Sheets	1.2	29 October 2007
Participant Information Sheet: Parent/Guardian	1.2	29 October 2007
Participant Information Sheet: Children	1.2	29 October 2007
Participant Consent Form	1.2	29 October 2007
Response to Request for Further Information		05 November 2007
Teacher report form (6-18)	1.2	29 August 2007
Assent form for children	1.2	29 October 2007
Cover letter to child's teacher	1.2	29 October 2007
Referee's reports		06 October 2006
Letter from funder		23 May 2007
Statement re: Insurance		14 August 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

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07/H0505/156

Page 3

- 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/H0505/156**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

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NRES approval for non-anxious children


National Research Ethics Service
Berkshire Research Ethics Committee

 Building L27
 University of Reading
 London Road
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 RG1 5AQ

10 December 2007

 Telephone: 0118 918 0556
 Facsimile: 0118 918 0559

 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: Treatment of child anxiety: Predictors and Outcomes of Treatment. Addendum to REC applications: 07/H0505/156; 07/H0505/157

REC reference number: 07/H0505/176

Thank you for your letter of 03 December 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	04 October 2007
Investigator CV		02 October 2007
Protocol	1.1	02 October 2007
Covering Letter		04 October 2007
Summary/Synopsis	1.1	02 October 2007

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

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Letter from Sponsor		04 October 2007
Interview Schedules/Topic Guides	1	01 August 2007
Interview Schedules/Topic Guides	1.1	01 October 2007
Questionnaire: Non-validated - Demographic Information	1.1	01 October 2007
Questionnaire: Validated - DASS21T	1.1	01 October 2007
Questionnaire: Validated - Assess parental over-involvement	1.1	01 October 2007
Questionnaire: Validated - Assess anxious thinking styles	1.1	01 October 2007
Questionnaire: Validated - Ambiguous scenarios - parent self report	1.1	01 October 2007
Questionnaire: Validated - Ambiguous scenarios - parent report on child	1.1	01 October 2007
Questionnaire: Validated - Spence Children's Anxiety Scale	1.1	01 October 2007
Questionnaire: Validated - Spence Children's Anxiety Scale- Parent report	1.1	01 October 2007
Questionnaire: Validated - Mattick Social Phobia Scale	1.1	01 October 2007
Questionnaire: Validated - Mattick Social Interaction Assessment scale	1.1	01 October 2007
Questionnaire: Child-friendly EQ-5D measure of outcome - child report	1.1	01 October 2007
Questionnaire: Child-friendly EQ-5D measure of outcome - parent report	1.1	01 October 2007
Questionnaire: Health Utilities Index Mark 2	1.1	01 October 2007
Participant Information Sheet: For ref: 07/H0505/156 - Children	1.3	24 November 2007
Participant Information Sheet: For ref: 07/H0505/156 - Parent/Guardian	1.3	24 November 2007
Participant Information Sheet: Clinical Participants Mothers - Genetic Study	1.3	24 November 2007
Participant Information Sheet: Clinical Participants - Fathers	1.3	24 November 2007
Participant Information Sheet: Non-clinical Participants - Parents	1.3	24 November 2007
Participant Information Sheet: Non-clinical Participants - Head teacher	1.3	24 November 2007
Participant Information Sheet: For ref: 07/H0505/157 - Children	1.3	24 November 2007
Participant Information Sheet: For ref: 07/H0505/157 - Parent/Guardian	1.3	24 November 2007
Participant Information Sheet: Children's	1.3	24 November 2007
Participant Consent Form: Assent form for children	1.3	
Participant Consent Form: Non-clinical Participants	1.3	24 November 2007
Participant Consent Form: For ref: 07/H0505/157 Assent form children	1.3	24 November 2007
Participant Consent Form: For ref: 07/H0505/157	1.3	24 November 2007
Participant Consent Form: For ref: 07/H0505/156 Assent form children	1.3	
Participant Consent Form: For ref: 07/H0505/156	1.3	
Participant Consent Form: Clinical Participants Mothers - Genetic Study	1.3	24 November 2007
Participant Consent Form: Clinical Participants - Fathers including DNA page	1.3	24 November 2007
Response to Request for Further Information		03 December 2007
Statement re: Insurance/ Indemnity		04 October 2007
Letter from funder		23 May 2007
Email re: funding		23 April 2007
Referee's reports		14 March 2007
Peer review - MRC Clinical Scientist Fellowship	2007/2008	

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.

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07/H0505/176

Page 3

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/H0505/176	Please quote this number on all correspondence
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With the Committee's best wishes for the success of this project

Yours sincerely

slc
 Professor Nigel Wellman
 Chair

Email: scsha.berksrec@nhs.net

Enclosures: *Standard approval conditions*
 Site approval form

Copy to: Dr Mike Proven, University of Reading

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NRES approval for children with anxiety disorders (recruited through the Overcoming trial)

SL38 Progress report reminder
Version 4.0, April 2009



National Research Ethics Service
Berkshire Research Ethics Committee

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26 November 2009

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

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

The REC gave a favourable ethical opinion to this study on 16 November 2007.

It is a condition of approval by the Research Ethics Committee that the Chief Investigator should submit a progress report for the study 12 months after the date on which the favourable opinion was given, and then annually thereafter. To date, the Committee has not yet received the annual progress report for the study, which was due on 16 November 2009. It would be appreciated if you could complete and submit the report by no later than 26 December 2009.

Guidance on progress reports and a copy of the standard NRES progress report form is available at <http://www.nres.npsa.nhs.uk/applications/after-ethical-review/progress-reports/>

There is also guidance on declaring the end of the study at <http://www.nres.npsa.nhs.uk/applications/after-ethical-review/endofproject/>
If the study has finished please just send a copy of the end of study: you do not need to send in a progress report as well.

Failure to submit progress reports may lead to a suspension of the favourable ethical opinion for the study.

REC reference number: 07/H0505/157

Please quote this number on all correspondence

Yours sincerely

Ms Lavenda Lee
Assistant Co-ordinator
Email: scsha.berksrec@nhs.net

Copy to: Dr Mike Proven, University of Reading

N:\Letters\07 REC Numbers\07.H0505.151 - 160\07.H0505.157 - SL38 - Remind pro report - 26.11.09.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*

9.2 Appendix 2: Clinical Audit Approval from BHFT

Berkshire Healthcare 
NHS Foundation Trust

Clinical Audit Department
5th floor, Fitzwilliam House
Skimped Hill Lane
Bracknell
RG12 1LD
Tel: 01344 415600
Email: clinical.audit@berkshire.nhs.uk
10th December 2013

Polly Waite
University of Reading
p.l.waite@reading.ac.uk

Dear Polly,

Clinical characteristics of adolescents referred for anxiety

Thank you for sending us your project proposal. The clinical audit department has carefully reviewed the different aspects of your proposed project from the proposal form submitted by yourself. Following review, the audit department has approved the project.

This project has now been registered and placed onto the audit department's database. Your unique project number is **1630**. Please use this number on any correspondence you may use, including any forms, this will help the audit department ascertain which audit the correspondence relates to.

Should you require assistance at any stage of your project please do not hesitate to contact the clinical audit department on the above details.

Please also note, the audit department is only able to offer limited support with this project. However, there are various documents and information that you may find useful, on the clinical audit pages of the intranet.

Please send a copy of your final report to the Clinical Audit Department for the Trust's records.

We wish you every success with the project.

Yours sincerely

Jen Knight
Clinical Audit Department

Appendix 3: UREC Ethics Approval Letters

UREC approval for adolescents with anxiety disorders and non-anxious adolescents

Research Ethics Committee



Dr Polly Waite
School of Psychology and Clinical Language Sciences

11 May 2012

Research Ethics Committee Project No. 12/25: An investigation of parent-child interactions in anxious adolescents and a pilot randomised controlled trial of an internet-based treatment

Dear Dr Waite

Thank you for your email providing amended documents in relation to the above project. I can confirm that the Chair is pleased to confirm a favourable ethical opinion on the basis of the submitted documentation.

Please note that the Committee will monitor the progress of projects to which it has given favourable ethical opinion approximately one year after such agreement, and then on a regular basis until its completion.

Please also find attached *Safety Note 59: Incident Reporting in Human Interventional Studies at the University of Reading*, should there be an incident arising from the conduct of this research.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Nathan Helsby".

Nathan Helsby
Planning Support Officer
(n.e.helsby@reading.ac.uk, x6972)

cc: Dr John Wright (Chair)
Professor Judi Ellis, Head of the School of Psychology and Clinical Language Sciences

UREC approval for children with anxiety disorders (recruited through the MaCh and Overcoming trials) and non-anxious children



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

9.4 Appendix 4: Information Sheets for Children/Adolescents

Information sheet for adolescents with anxiety disorders



INFORMATION ABOUT THE RESEARCH FOR ADOLESCENTS

Hi,

We are inviting you to take part in a study we are doing.

Why is this project being done?

- ① To help us better understand anxiety problems in teenagers and what happens with teenagers and their parents when they feel anxious
- ② To test an internet treatment for anxiety in teenagers
- ③ To see if it helps you if your mum or dad have some sessions too

Why have I been asked to take part?

You have been asked to take part because you have come to the Berkshire Child Anxiety Clinic for help with anxiety. Sixty teenagers referred to the clinic will also take part.



Do I have to take part?



Whether or not you take part in this study is **completely up to you**. You do not have to do this. If you decide not to take part you will still get the usual help that we give young people. Also, if you decide to 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.

What will happen to me if I take part in the project?

1. Video-tape Assessment Session with your Mum or Dad:



We would like to ask you and your mum or dad (whoever spends most time with you) lots of questions about how you feel and what you do in different situations. We ask these questions before treatment in the clinic begins. We would also like to audio-record some of your answers 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

two of these tasks.

2. Internet Treatment Sessions to help with anxiety:

All teenagers who take part will get help with their worries and fear - **whether you do the video-tape assessment or not**. Everyone will have 10 sessions over the internet and they will have someone from the clinic who keeps in touch over email and by telephone to see how they get on and help if they get stuck.



Half the teenagers will wait for 10 weeks for the sessions to start. This is because some young people get better with no treatment and so we need to make sure that the treatment actually helps. Which teenagers have to start straightaway and which ones start after 10 weeks gets decided randomly by a computer. For half the teenagers, we will also be giving their main carer (e.g. the parent that spends most time with them) some internet sessions. Again, this is chosen randomly by the computer. This is so they can learn how to help you better when you feel anxious or worried.


Might anything about the research upset me?

Some teenagers might get upset when they think about their worries but the people at the clinic that you and your parent will be talking to will be able to help if this is the case.

Will joining in help me?

Yes. You will learn new ways to deal with your fears and worries. You will also be helping other teenagers, as taking part will help us understand what happens to teenagers when they get anxious and help us to improve treatments.

Will my information be kept private if I take part? Will anyone else know I'm doing this?

 Everything you tell us as part of this project is treated as confidential; this means that nobody other than us will ever know what you have told us. The only time we would not be able to keep something to ourselves 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 the person who looks after you or your family doctor. All your answers will be kept in locked cabinets and nothing will have your name on it. Audio and video-recordings will be kept on the computer and will need a password to get into them. Once we have finished the project all the questionnaires will be shredded and computer files will be deleted.

Did anyone else check the project is okay to do?

Before any research is allowed to happen, it has to be checked by a group of people called an Ethics Committee. They make sure the research is okay to do. This study has been looked at by the Reading University Ethics Committee and the London - Brent National Research Ethics Service (NRES) Committee and they were happy for it to go ahead.





What if I have more questions?

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

Thanks

Polly Waite

 p.l.waite@reading.ac.uk

 0118 378 5534

Information sheet for non-anxious adolescents



INFORMATION FOR TEENAGERS

Hi,

We are inviting you to take part in a study we are doing.

Why is this project being done?

This project is being done to help us better understand anxiety problems in teenagers and what happens with teenagers and their parents when they feel anxious. To do this, we need to find 30 teenagers who don't have problems with anxiety so that we can compare them to teenagers for whom anxiety is a problem.



Why have I been asked to take part?

You have been asked to take part because we would like to study a group of 30 teenagers who **do not have problems with anxiety**.

Do I have to take part?



Whether or not you take part in this study is **completely up to you**. You do not have to do this. Also, if you decide to take part and then change your mind, you won't have to give us a reason and this won't matter at all.

What will happen to me if I take part in the project?



We would like to ask you and your parent (whoever spends most time with you) questions about how you feel and what you do in different situations.

We also would like to audio-record some of your answers and make some video-tapes of you and your parent 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 two of these tasks.

Might anything about the research upset me?

Some teenagers might get upset when they think about worries but the people at the clinic that you and your parent will be talking to will be able to help if this is the case.

What will we get out of taking part?

You will be helping other teenagers, as taking part will help us understand what happens to teenagers when they get anxious and help us to improve treatments. We will pay for your travel expenses (like bus ticket or petrol) to get to the University and you will also get a £25 gift voucher for giving up your time to take part.

Will my information be kept private if I take part? Will anyone else know I'm doing this?

Everything you tell us as part of this project is treated as confidential; this means that nobody other than us will ever know what you have told us. The only time we would not be able to keep something to ourselves 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 the person who looks after you or your family doctor.

All your answers will be kept in locked cabinets and nothing will have your name on it. Audio and video-recordings will be kept on the computer and will need a password to get into them. Once we have finished the project all the questionnaires will be shredded and computer files will be deleted.


Did anyone else check the project is okay to do?


Before any research is allowed to happen, it has to be checked by a group of people called an Ethics Committee. They make sure the research is okay to do. This study has been looked at by the Reading University Ethics Committee and the London - Brent National Research Ethics Service (NRES) Committee and they were happy for it to go ahead.

**What if I have more questions?**

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

Thanks
Polly Waite

 p.l.waite@reading.ac.uk

 0118 378 5534

Information sheet for children with anxiety disorders (recruited through the MaCh trial)

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); lucy.willetts@berkshire.nhs.uk

Clinical Research Fellow: Dr Cathy Creswell; Email: c.creswell@rdg.ac.uk

Trials Manager: Dr Rachel Gitau (Tel: 0118 378 4682); r.gitau@rdg.ac.uk

Clinical/counselling Psychologists: (Tel: 0118 378 8926); Dr Monika Parkinson; m.b.parkinson@reading.ac.uk. Dr Katie Adolphus; k.adolphus@reading.ac.uk. Mrs Sally Greenfield; s.a.m.greenfield@rdg.ac.uk.

Study Assessors: Sarah Cook; s.e.cook@rdg.ac.uk. Amy Corcoran; a.corcoran@rdg.ac.uk. Jenny Crosby; j.crosby@rdg.ac.uk. Ray Percy; r.s.percy@rdg.ac.uk. Sarah Shaw; sxs07ses@reading.ac.uk.

Trials Secretary: Jackie Barton; j.m.barton@rdg.ac.uk

Research Director: Professor Peter Cooper (Tel: 0118 378 6617); p.j.cooper@rdg.ac.uk

INFORMATION SHEET FOR CHILDREN

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 to take part in a study we are doing. This study is to help us find better ways of helping children.



The study involves two things. First, it involves us giving a bit more help than we usually do. For example, as well as seeing children on their own, we will also sometimes be seeing children with their mums.

Second, it involves us asking the children and their mums 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 getting the same sort of help) and make some video-tapes of you and your mum 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 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).

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. They were both 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
Clinical Director

Dr Rachel Gitau
Trials Manager

Professor Peter Cooper
Research Director

Information sheet for children with anxiety disorders (recruited through the Overcoming trial)

Berkshire Research Ethics reference number: 07/H0505/156- 157-176
 University of Reading Ethics reference number: 07/48-49-50
 Version 1.3 (24.11.07)



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.oogrady@reading.ac.uk

Trials Secretary: Brendan Lawrence; b.lawrence@reading.ac.uk

Research Director: Professor Peter Cooper (Tel: 0118 378 6617); p.i.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



Berkshire Research Ethics reference number: 07/H0505/156- 157-176
University of Reading Ethics reference number: 07/48-49-50
Version 1.3 (24.11.07)

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
Clinical Director

Dr Sue Cruddace
Trial Manager

Professor Peter Cooper
Research Director

Berkshire Child Anxiety Clinic
University of Reading



Information sheet for non-anxious children

Version 1.3 (24.11.07) Draft currently under
 Ethics reference number: 07/H0505/176 review by Berkshire Research Ethics Committee

WINNICOTT RESEARCH UNIT

Directors:
Professor Lynne Murray
Professor Peter Cooper
Researchers:
Dr Cathy Creswell

School of Psychology
 The University of Reading
 3 Earley Gate
 Whiteknights
 PO Box 238
 Reading
 RG6 6AL
 Tel: (0118) 3786667
 Fax: (0118) 3786665

University of Reading study of children and parents

Children's Information Sheet (posted after parent contact)

Dear

Your Mum has said that you might be interested in helping us with a research project that we are doing at the University of Reading.

Many children come to see us at the University because they have problems with their thoughts and feelings. We would like to find out more about why some children have these problems. To help us do this we need to see in what ways they and their parents are the same, and in what ways they are different from other children who don't have these problems. This is why we are inviting you and other children from your school to come and help us.

If you are happy, you will come to the University with your Mum. We will ask you both to answer some questions about how you have been feeling lately. We will then ask you to do some tasks together. We will video-record you both doing these tasks. These videos will only be watched by people who work with us, and no one else will be able to see them. 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 very much like you to help us by taking part in our study but it is up to you. You do not have to do this. If you and your mum decide not to take part, that is fine. Also, if you do decide to take part and then change your mind, this won't matter at all.

Version 1.3 (24.11.07) Draft currently under
Ethics reference number: 07/H0505/176 review by Berkshire Research Ethics Committee

Everything you tell us in your visit to the University 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.

(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 dad).

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, both of whom 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 Cathy Creswell
Study Manager

9.5 Appendix 5: Information Sheets for Parents

Information sheet for parents of adolescents with anxiety disorders

INFORMATION ABOUT THE RESEARCH FOR PARENTS

PART 1

What is the purpose of the study?

This study has a number of aims:

1. To help us better understand anxiety problems in adolescents; specifically how adolescents think about anxiety-provoking situations and how parents and adolescents interact with each other when the adolescent is anxious.
2. To test an internet-based treatment specifically designed for adolescents with anxiety problems.
3. To test whether providing additional sessions to parents improves treatment outcome for the adolescent.

Why have we been invited?

You and your son/daughter have been invited because they have been referred to the Berkshire Child Anxiety Clinic for treatment. Sixty adolescents referred to the clinic will take part in the study.

What happens if my son/daughter has been prescribed medication for their mood or behaviour?

One of the requirements of this study is that adolescents must either not be prescribed medication aimed at changing their mood or behaviour (e.g. anti-depressant medication or Ritalin) or, if they have been prescribed these types of medication, this must have been prescribed at a stable dose for at least 8 weeks prior to taking part in the study, with agreement to maintain that dose throughout the study. If your son/daughter is prescribed this kind of medication and it 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 your son/daughter's GP.

Do we have to take part?

It is up to you and your son/daughter to decide whether to join the study. In addition to this material, if you agree, we will set an appointment to go over this information sheet together. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving any reason. This would not affect the standard of care or the treatment you and your son/daughter receive in any way.

What will happen if we take part?

During the first visit to our clinic, you and your son/daughter will already have answered some standard questions and completed some questionnaires about their worries and behaviours. You will then have received this information package about the project and consent/assent forms. If you are both happy to take part in the study, you will both be asked to sign consent/assent forms.

Laboratory Assessment Session:

If you decide to take part in the study, an appointment will be made for you and your son/daughter at the University of Reading. At this assessment, they will be asked some further questions and will complete two questionnaires. Then, to understand exactly how they react to stress, and your own response to this, we will ask if we can make a series of short video-tapes and record your son/daughter's heart rate during two of the tasks. Specific permission will be sought to make these video recordings.

Following this assessment, your son/daughter will be offered treatment for their anxiety disorder.

Treatment will be offered regardless of whether or not they have participated in this assessment session.

Treatment:

All adolescents who take part in the study will receive 10 sessions of internet-based cognitive behaviour therapy (CBT), over 10 weeks. Because some young people get better without receiving treatment, we need to compare with the outcomes of the psychological treatment to outcomes when young people receive no treatment. Consequently, adolescents will be randomly allocated to either begin treatment immediately or after a 10-week delay. A computer, which has no information about the individual, selects the groups, i.e. by chance. Half the participants will begin CBT immediately and the other half will wait 10 weeks for treatment.

The treatment is delivered over the internet. The sessions are accessed via a password-protected website and are completed in order. Booster sessions are provided one month and three months after treatment finishes to help your son/daughter to keep practicing the skills that have been learned.

Before treatment, your son/daughter will be assigned a therapist who monitors their progress through the program, provides brief email feedback following each session, and provides a telephone call after the fifth session. All therapists are psychologists who are trained by and receive regular supervision from an experienced clinical psychologist.

For half the adolescents who take part in their study, we will also be providing five internet-based sessions of CBT to the parent who is their primary caregiver. This is to see whether adding sessions for parents improves how adolescents do in treatment. Again, this is allocated randomly by a computer and there is a 50/50 chance of you, or your son/daughter's primary caregiver, being assigned to have these sessions. The aim of these sessions is to enable parents to help their adolescent to implement the skills they have learned through their sessions and to effectively deal with situations where their adolescent becomes anxious.

Clinical assessments following waitlist and treatment:

There will also be either three or four further assessments depending on which group your son/daughter is allocated to. If they are in the group that has to wait for treatment, they will be reassessed just before treatment starts. All participants will then be assessed immediately after

treatment finishes and then 6 months and one year later. Each time, this will involve meeting with someone from our team to answer questions and complete some questionnaires about your son/daughter's behaviours, feelings, and reactions in various situations. This re-assessment will take about one and half hours altogether and will take place wherever it is convenient for you. We will then write to you both with the results of the assessment and send a copy to your referrer and your GP to let them know how your son/daughter is doing.

What will we have to do?

To summarise, if you and your son/daughter are happy to take part, an appointment will be made for you both at the University of Reading. At this assessment, your son/daughter will be asked some further questions and will complete two questionnaires. Then, to understand exactly how they react to stress, and your own response to this, we will ask if we can make a series of short video-tapes and record their heart rate during two of the tasks. Regardless of whether your son/daughter and you take part in this assessment, they will then be offered 10 sessions of internet-based cognitive behaviour therapy (CBT), taking place over 10 weeks. This will be randomly allocated to either begin immediately or after a 10-week delay. Half the adolescents will also be randomly allocated for their parent to receive five internet-based sessions to help them support their adolescent in treatment. There will then be 3 or 4 further assessments depending on which group your son/daughter is allocated to, to assess how they are doing following treatment and at 6 months and one-year after treatment finishes.

Expenses

You will be reimbursed for any travel expenses incurred in relation to the laboratory assessment session, as the information we will collect at that time is primarily for research purposes.

What are the possible disadvantages and risks of taking part?

Assessments and treatment sessions may involve discussing potentially upsetting situations. However, the team involved in both assessment and treatment will have formal approval and training to work with adolescents and they will be supervised by a qualified clinical psychologist experienced at managing patient risk. A possible burden might be the time required to carry out the assessments and post-treatment and follow-up assessments. However, efforts will be made to accommodate your schedule and set up appointments wherever is most convenient for you (at home, at the local clinic, at the Berkshire Child Anxiety Clinic).

What are the possible benefits?

The study will involve treatment sessions for your son/daughter's anxiety. We will also conduct additional assessments of their progress and hope that the reports that follow will be useful for you both. Finally, taking part will contribute to our gaining a greater understanding of anxiety in adolescents and enables us to evaluate and refine clinical treatments that are specifically designed for this age group.

What happens when the research study stops?

If your son/daughter requires further treatment after the study finishes, we will either offer further sessions or arrange a referral to another service if this is more appropriate.

What if there is a problem?

Any complaint about the way you or your son/daughter have been dealt with during the study or any other possible distress either of you may suffer will be addressed. The detailed information on this is given in Part 2.

Will our taking part in the study be kept confidential?

Yes. We will follow ethical and legal practice and any information will be handled in confidence. The only exception to this is if we learn that you or your son/daughter is at risk of harm, in which case we will inform your son/daughter's GP. The detailed information on this is given in Part 2.

Who has allowed this study to go ahead?

This study was given a favourable ethical opinion for conduct by both the University of Reading Research Ethics Committee and by the London - Brent National Research Ethics Service (NRES) 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 and adolescents.

If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision. Please discuss the project with a member of our team and make sure all your questions have been answered before signing the consent form and returning it to us.

Title of Project: Parent-child interactions and the treatment of anxious adolescents
Principal Investigator: Dr Polly Waite

PART 2**What will happen if we don't want to carry on with the study?**

You can decide not to take part in the study for any reason and at any time. This will not affect the standard of care your son/daughter receives. If you would prefer that we don't continue to use the information that you have given us at that point please notify us and we will ensure the information is destroyed.

What if there is a problem?

If you have any concern about any aspect of the study, you should ask to speak to Dr Polly Waite, the principal investigator of the project. Please see the last page for contact details. If you remain unhappy and wish to complain formally, you can contact our Head of School, Prof Judi Ellis, who will arrange a meeting with you to discuss any concerns you may have.

All research conducted by the University of Reading is covered by Employer's Liability, Public Liability, and Professional Indemnity insurance policies actively in place.

Where will this study take place?

Assessments will be conducted in a quiet room in the School of Psychology at the University of Reading, at the local clinic, or at your home, depending on which is the most convenient for you. The video-tape assessment will take place in the clinic at the University of Reading and we will cover all travel expenses you incur to make this visit. Treatment sessions will occur via the internet at your home.

Will our taking part in this study be kept confidential?

All the information provided will be kept confidential, unless we are concerned about the welfare or safety of your son/daughter, in which case we will raise this with you and/or your son/daughter's GP. The information we collect (questionnaire answers, audio and video recordings) will not have any names on and will be kept strictly confidential in locked cabinets in a password-protected area of the university. Audio and video-recordings will be kept on a password-protected university drive with restricted access, which is currently used for all clinic documentation. All the information collected for the project (answers to questionnaires, audio and video-recordings) will be kept confidential and destroyed as soon as they are no longer needed. The consent/assent forms, however, will be kept for 5 years before disposal.

Will we involve your son/daughter's General Practitioner (GP)?

With your permission, we will send a letter to your son/daughter's GP informing them about your son/daughter's participation in the project (a copy of the letter we would send is attached). If you agree, we will also send them a copy of the progress reports we provide following each assessment.

What will happen to the results of the research study?

The results of the current study are intended for publication in a scientific journal and at professional academic conferences. When we do this, no personal information will be given and if we quote anything that has been said by people taking part in the study, this will be anonymous and will not be traceable to a particular person. If you would like a report of the findings of our study, we will be happy to provide it. Please note that the publication of any such data may take a year or more after the completion of the study.

Who is organising and funding the research?

The research is organised and funded by the Medical Research Council in collaboration with the University of Reading.

Who has reviewed the study?

All research at the University of Reading is reviewed by an independent group of people, called a Research Ethics Committee, to protect your interests. This application has been reviewed and given a favourable opinion by the University of Reading Research Ethics Committee and by the London - Brent National Research Ethics Service (NRES) 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 and adolescents.

Do we have to take part?

Participation in this study is entirely voluntary. If you have any questions please do not hesitate to contact us by phone or email. We will happy to tell you more about the research and to discuss any questions or concerns you might have.

Further Information and Contact Details

Principal Investigator: Dr Polly Waite
Email: p.l.waite@reading.ac.uk
Phone: 0118 378 5534

Head of School: Prof Judi Ellis
Email: j.a.ellis@reading.ac.uk
Phone: 0118 378 6415

Many thanks for your help

Yours sincerely,

On Behalf of the Research Team at the University of Reading

Information sheet for parents of non-anxious adolescents

INFORMATION FOR PARENTS OF NON-ANXIOUS ADOLESCENTS

PART 1

What is the purpose of the study?

The aim of this study is to help us better understand anxiety problems in adolescents; specifically how adolescents think about anxiety-provoking situations and how parents and adolescents interact with each other when the adolescent is anxious. In order to do this, we will be studying a group of adolescents who have anxiety (and a group of younger children with anxiety) and comparing them to a group of adolescents who do not have anxiety.

Why have we been invited?

You and your son/daughter have been invited because we would like to recruit a group of 30 adolescents who do not have problems with anxiety.

Do we have to take part?

It is up to you and your son/daughter to decide whether to join the study. In addition to this material, if you agree, we will set an appointment to go over this information sheet together. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving any reason.

What will happen if we take part?

You and your son/daughter will have already completed 2 questionnaires about whether they have any problems with anxiety or low mood. You will then have received this information package about the project and consent/assent forms. If you are both happy to take part in the study, you will both be asked to sign consent/assent forms.

If you decide to take part in the study, an appointment will be made for you and your son/daughter to come to the University of Reading for an assessment. At this assessment, your son/daughter will be asked some further questions and will complete two questionnaires and we will ask you to complete one questionnaire about yourself. Then, to understand exactly how they react to stress, and your own response to this, we will ask if we can make a series of short video-tapes and record your son/daughter's heart rate during two of the tasks. Specific permission will be sought to make these video recordings.

What will we have to do?

To summarise, if you and your son/daughter are happy to take part, an appointment will be made for you both at the University of Reading. At this assessment, your son/daughter will be asked some further questions and will complete two questionnaires. Then, to understand exactly how they react to stress, and your own response to this, we will ask if we can make a series of short video-tapes and record their heart rate during two of the tasks.

Expenses and payments

You will be reimbursed for any travel expenses incurred and receive a £25 gift voucher as a token of appreciation for your participation.

What are the possible disadvantages and risks of taking part?

The assessment involves answering questions about feelings and behaviours and could involve discussing upsetting situations. However the team involved in both assessment and treatment will have formal approval and training to work with adolescents and they will be supervised by a qualified clinical psychologist experienced at managing patient risk. A possible burden might be the time required to carry out the assessment. However, efforts will be made to accommodate your schedule and set up the appointment at a time that is convenient for you both.

What are the possible benefits?

Taking part will contribute to our gaining a greater understanding of anxiety in adolescents. You will also be reimbursed for your travel expenses and receive a gift voucher for participating.

What if there is a problem?

Any complaint about the way you or your son/daughter have been dealt with during the study or any other possible distress either of you may suffer will be addressed. The detailed information on this is given in Part 2.

Will our taking part in the study be kept confidential?

Yes. We will follow ethical and legal practice and any information will be handled in confidence. The detailed information on this is given in Part 2.

Who has allowed this study to go ahead?

This study was given a favourable ethical opinion for conduct by both the University of Reading Research Ethics Committee and by London - Brent National Research Ethics Service (NRES) 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 and adolescents.

If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision. Please discuss the project with a member of our team and make sure all your questions have been answered before signing the consent form and returning it to us.

Title of Project: Parent-child interactions and the treatment of anxious adolescents

Principal Investigator: Dr Polly Waite

PART 2

What will happen if we don't want to carry on with the study?

You can decide not to take part in the study for any reason and at any time. If you would prefer that we don't continue to use the information that you have given us at that point please notify us and we will ensure the information is destroyed.

What if there is a problem?

If you have any concern about any aspect of the study, you should ask to speak to Dr Polly Waite, the principal investigator of the project. Please see the last page for contact details. If you remain unhappy and wish to complain formally, you can contact our Head of School, Prof Judi Ellis, who will arrange a meeting with you to discuss any concerns you may have.

All research conducted by the University of Reading is covered by Employer's Liability, Public Liability, and Professional Indemnity insurance policies actively in place.

Where will this study take place?

The video-tape assessment will take place in the School of Psychology at the University of Reading and we will cover all travel expenses you incur to make this visit.

Will our taking part in this study be kept confidential?

All the information provided will be kept confidential, unless we are concerned about the welfare or safety of your son/daughter, in which case we will raise this with you and/or your son/daughter's GP. The information we collect (questionnaire answers and video recordings) will not have any name on and will be kept strictly confidential in locked cabinets in a password-protected area of the university. Video-recordings will be kept on a password-protected university drive with restricted access, which is currently used for all clinic documentation. All the information collected for the project (answers to questionnaires and video-recordings) will be kept confidential and destroyed as soon as they are no longer needed. The consent/assent forms, however, will be kept for 5 years before disposal.

What will happen to the results of the research study?

The results of the current study are intended for publication in a scientific journal and at professional academic conferences. When we do this, no personal information will be given and if we quote anything that has been said by people taking part in the study, this will be anonymous and will not be traceable to a particular person. If you would like a report of the findings of our study, we will be happy to provide it. Please note that the publication of any such data may take a year or more after the completion of the study.

Who is organising and funding the research?

The research is organised and funded by the Medical Research Council in collaboration with the University of Reading.

Who has reviewed the study?

All research at the University of Reading is reviewed by an independent group of people, called a Research Ethics Committee, to protect your interests. This application has been reviewed and given a favourable opinion by the University of Reading Research Ethics Committee and by the London - Brent National Research Ethics Service (NRES) 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 and adolescents.

Do we have to take part?

Participation in this study is entirely voluntary. If you have any questions please do not hesitate to contact us by phone or email. We will be happy to tell you more about the research and to discuss any questions or concerns you might have.

Further Information and Contact Details

Principal Investigator: Dr Polly Waite

Email: p.l.waite@reading.ac.uk

Phone: 0118 378 5534

Head of School: Prof Judi Ellis

Email: j.a.ellis@reading.ac.uk

Phone: 0118 378 6415

Many thanks for your help

Yours sincerely,

On Behalf of the Research Team at the University of Reading

Information sheet for parents of children with anxiety disorders (recruited through the MaCh trial)

Berkshire Research Ethics reference number: 07/H0505/156- 157-176
 University of Reading Ethics reference number: 07/48-49-50.
 Version 1.5 (12.8.08)

ISRCTN19762288

Berkshire Healthcare 
 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: Jackie Barton; j.m.barton@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, funded jointly by the Medical Research Council and the Berkshire Healthcare NHS Foundation Trust. 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, some children do not benefit as much as we would like. One group who do not always do as well as we would wish is children whose mothers also have problems with anxiety. In our clinic we have been trying out various ways of helping these children. We now want to do a study to test whether the outcome for children who receive the standard treatment is actually improved by the additional help we offer.

Over a period of 30 months we are inviting all mothers who bring their children for help with anxiety, who themselves are also anxious, and their children, to participate in our study. You are being invited because you have told us that you have some problems with anxiety. 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

Berkshire Child Anxiety Clinic

University of Reading



Berkshire Research Ethics reference number: 07/H0505/156- 157-176
 University of Reading Ethics reference number: 07/48-49-50.
 Version 1.5 (12.8.08)

ISRCTN19762288

any reason. If 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, mid-way through the treatment, at the end of the course of treatment, and then six and twelve months later. 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

As noted above, all the children who take part in the study receive the standard treatment we routinely offer all children in our clinic. This involves eight weekly 50 minute sessions in which the child is seen by a clinical psychologist. In our current study, as part of our effort to help children more, before we begin treatment with the children, mothers receive help with their own difficulties **over an eight week period**. Then, during the phase when the children receive the usual treatment, there are an extra four to eight therapy sessions involving guidance on issues of family health or on child **management**. To ensure that the groups receiving the different forms of additional help are comparable to begin with, which families receive which of these extra treatments is decided randomly.

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 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 (mothers 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

Berkshire Child Anxiety Clinic
 University of Reading



Berkshire Research Ethics reference number: 07/H0505/156- 157-176
University of Reading Ethics reference number: 07/48-49-50.
Version 1.5 (12.8.08)

ISRCTN19762288

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 given help with your own difficulties, your child will then receive the usual treatment for his/her anxiety, and finally there will be extra sessions during which you and your child will be seen together. We will ask you and your child standard questions to find out how you both are before treatment begins and on four 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 mothers 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.

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,

Dr Lucy Willetts
Clinical Director

Dr Rachel Gitau
Trials Manager

Professor Peter Cooper
Research Director

Berkshire Child Anxiety Clinic
University of Reading



Information sheet for parents of children with anxiety disorders (recruited through the Overcoming trial)

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)



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.ogradv@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

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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

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 University of Reading



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.

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University of Reading



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)

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
Clinical Director

Dr Sue Cruddace
Trial Manager

Professor Peter Cooper
Research Director

Berkshire Child Anxiety Clinic
University of Reading



Information sheet for parents of non-anxious children

Version 1.3 (24.11.07)

Ethics reference number: 07/H0505/176

Draft currently under
review by Berkshire Research Ethics Committee

WINNICOTT RESEARCH UNIT

Directors:

Professor Lynne Murray

Professor Peter Cooper

Research Coordinator:

Dr Cathy Creswell

School of Psychology
The University of Reading
3 Earley Gate

Whiteknights

PO Box 238

Reading

RG6 6AL

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Fax: (0118) 3786665

University of Reading study of children and parents

Parent's Information Sheet

Dear Parent

Here at the University of Reading we are conducting a large study to evaluate new treatments for childhood anxiety. We are keen to recruit a non-clinical population of healthy children aged 7-12 years to see how they compare on our assessments to the children whom we see in our clinic. We are writing to you in the hope that you and your child might be able to come to our laboratory to help us with this research.

Background to the study

Treatments for children who experience problems to do with anxiety are based heavily on changing family thinking patterns and behaviours. We are keen to establish whether certain types of family thinking patterns and behaviours are more common amongst clinically anxious children than a healthy comparison group. This knowledge will help the development of treatments for highly anxious children.

Procedure

Should you agree to take part in the study, we will give you a call to discuss the study in more detail and arrange a convenient time for you and your child to visit us at the University. *We are able to provide a £25 voucher of your choice as a small token of our thanks for your participation, and will, of course, reimburse your travel expenses.*

When you arrive we will ask you and your child to complete some questionnaires about your feelings and moods. We will then ask you to take part in a series of short tasks with your child. We will video-record these tasks and also record your own and your child's heart rate.

All information we collect will be held in the strictest confidence. All personal information will be destroyed on completion of the study. Your participation is, of course, entirely voluntary, and you may withdraw at any time without giving a reason.

This project has been funded by the Medical Research Council and has been submitted for ethical review, in accordance with procedures specified by the Berkshire Research Ethics

Version 1.3 (24.11.07) Draft currently under
Ethics reference number: 07/H0505/176 review by Berkshire Research Ethics Committee

Committee and Reading University Ethics and Research Committee, and allowed to proceed. All investigators on this project have been through the formal Disclosure procedure and have been approved by the School to work with children. We will be happy to provide feedback to you about our findings and their implications upon completion of the study.

What happens next?

If you are happy to take part or are interested to know more about the study please return the reply slip below to your child's teacher. We will then contact you shortly to discuss the study in more detail.

Thank you very much for your help.

Yours sincerely

Dr Cathy Creswell

Contact: c.creswell@reading.ac.uk: 0118 378 6667

University of Reading study of children and parents

I am happy to be contacted to discuss my child and I taking part in this study.

Child's name: _____

Child's school: _____

Parent's name: _____

Telephone: _____ (Day) _____ (Evening)

Address: _____

Please return this slip to your child's teacher. Thank you.

9.6 Appendix 6: Assent/Consent Forms for Children/Adolescents

Assent form for adolescents with anxiety disorders



ASSENT FORM FOR CHILDREN & ADOLESCENTS

(To be completed by the child or adolescent and his/her guardian)

Study of Anxiety in Children and Adolescents

Please circle all you agree with:

- Have you read (or had read to you) the information about this project? **YES/ NO**
- Has somebody 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/no questions**
- 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 _____

Assent form for non-anxious adolescents



ASSENT FORM FOR CHILDREN & ADOLESCENTS

(To be completed by the child or adolescent and his/her guardian)

Study of Anxiety in Children and Adolescents

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/no questions**
- 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 _____

Assent form for children with anxiety disorders (recruited through the MaCh trial)

Berkshire Research Ethics reference number: 07/H0505/156- 157-176
 University of Reading Ethics reference number: 07/48-49-50
 Version 1.3 (24.11.07)



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 _____

Berkshire Child Anxiety Clinic
 University of Reading



Assent form for children with anxiety disorders (recruited through the Overcoming trial)

Berkshire Research Ethics reference number: 07/H0505/156- 157-176
 University of Reading Ethics reference number: 07/48-49-50
 Version 1.3 (24.11.07)



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Your name _____
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Print name _____
 Sign _____
 Date _____

The person who explained this project to you needs to sign too:

Print name _____
 Sign _____
 Date _____

Berkshire Child Anxiety Clinic
 University of Reading



Assent form for non-anxious children

Version 1.3 (24.11.07)

Draft currently under

Ethics reference number: 07/H0505/176 review by Berkshire Research Ethics Committee

WINNICOTT RESEARCH UNIT

Directors:

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

University of Reading study of children and parents

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 7: Consent Forms for Parents

Consent form for parents of adolescents with anxiety disorders



Winnicott Research Unit
Department of Psychology and Clinical Language Sciences
University of Reading
Harry Pitt Building
Whiteknights Road
Reading RG6 6AL

CONSENT FORM

Title of Project: Parent-child interactions and the treatment of anxious adolescents
Principal Investigator: Dr Polly Waite

(Please initial each box)

1. I confirm that I have read and understand the Information Sheet dated 22.02.12 (Version 2) 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 son/daughter's participation is voluntary and that we are free to withdraw at any time, without giving any reason, without our medical care or legal rights being affected.
3. I understand that relevant sections of the data collected during the study may be looked by at individuals from University of Reading, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.
4. I agree to our GP being informed of my son/daughter's participation in the study as explained in the Information Sheet and will provide contact information for this purpose.
5. I agree for my son/daughter to be videotaped.
6. I agree for my son/daughter to take part in the above study.

The study was reviewed and given a favourable ethical opinion for conduct by the London - Brent National Research Ethics Service (NRES) Committee.

I have spoken to: _____ Your child's name: _____

Your Name: _____ Date: _____ Signature: _____

Name of Researcher: _____ Date: _____ Signature: _____

Consent form for parents of non-anxious adolescents



Winnicott Research Unit
 Department of Psychology and Clinical Language Sciences
 University of Reading
 Harry Pitt Building
 Whiteknights Road
 Reading RG6 6AL

CONSENT FORM

Title of Project: Parent-child interactions and the treatment of anxious adolescents
Principal Investigator: Dr Polly Waite

(Please initial each box)

1. I confirm that I have read and understand the Information Sheet dated 22.02.12 (Version 2) for the above study. I have had the opportunity to consider the information, ask questions, and have had these answered satisfactorily.
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5. I agree for my son/daughter to take part in the above study.

The study was reviewed and given a favourable ethical opinion for conduct by the London - Brent National Research Ethics Service (NRES) Committee.

I have spoken to: _____ Your child's name: _____

Your Name: _____ Date: _____ Signature: _____

Name of Researcher: _____ Date: _____ Signature: _____

Consent form for parents of children with anxiety disorders (recruited through the MaCh trial)

Berkshire Research Ethics reference number: 07/H0505/156- 157-176
 University of Reading Ethics reference number: 07/48-49-50
 Version 1.6 (12.08.08)



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.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: Jackie Barton; j.m.barton@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.	

Berkshire Child Anxiety Clinic
 University of Reading



Berkshire Research Ethics reference number: 07/H0505/156- 157-176
University of Reading Ethics reference number: 07/48-49-50
Version 1.6 (12.08.08)

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

Berkshire Child Anxiety Clinic
University of Reading



Consent form for parents of children with anxiety disorders (recruited through the Overcoming trial)

Berkshire Research Ethics reference number: 07/H0505/156- 157-176
 University of Reading Ethics reference number: 07/48-49-50
 Version 1.6 (12.08.08)



Study Centre Address:

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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	
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8. I agree to take part in this study.	

Berkshire Child Anxiety Clinic
 University of Reading



Berkshire Research Ethics reference number: 07/H0505/156- 157-176
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Version 1.6 (12.08.08)

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



Consent form for parents of non-anxious children

Version 1.3 (24.11.07) Draft currently under
 Ethics reference number: 07/H0505/176 review by Berkshire Research Ethics Committee

WINNICOTT RESEARCH UNIT

Directors:
Professor Lynne Murray
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Researchers:
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 Whiteknights
 PO Box 238
 Reading
 RG6 6AL
 Tel: (0118) 3786667
 Fax: (0118) 3786665

University of Reading study of children and parents

1. I have read the information sheet relating to the University of Reading study of children and parents
2. I understand that all personal information will remain confidential to the Investigator and will be destroyed on completion of the study.
3. I understand that participation in this study is voluntary and that I can withdraw myself or my child at any time without having to give an explanation.

I agree to my child participating in this study. YES/ NO

I agree to participate in this study YES/ NO

Child's name: _____

Parent's name: _____

Address: _____

9.8 Appendix 8: Task instructions for Parent-Child Interaction Tasks

Parent-Child Interaction Task instructions (14th August 2012)

1. BLACK BOX TASK

Procedure:

Read the task instructions to the parent and adolescent/child. Place the black box with the 'scary' items inside (hole 1: teddy; hole 2: prickly plastic toy; hole 3: eye ball; hole 4: slime) on the table in the lab after the pre-task ratings have been made, with Hole 1 facing away from the primary camera and the box lined up with the mark on the table. Ask parent and adolescent/child to stand facing Hole 1 (and primary camera).

Continue task until all items removed or after 5 minutes (whichever sooner). If the adolescent/child appears overly distressed by presence of box, finish the task. If the adolescent/child fails to remove all of the items from the black box within the allocated time, the experimenter should take a couple of minutes at the end to show them the remaining items. Upon completion, remove the black box from the room.

Adolescent/Child/Parent Instructions:

'There are four things in the black box. Some are scary but some are not. We'd like you [child/adolescent] to choose a hole, put your hand into the box and take out what you find. But before you put your hand in each time, we'd like you to discuss what you think might be in there. [Parent] you are free to help them as much as you feel is necessary. When you are ready, turn the box and choose another hole. There are four holes in all to try.'

'Before we start, I'd like you to make some ratings. There is no need to think for a long time about your answers, just give me the first response that comes into your mind.' [DO RATINGS INDEPENDENTLY FOR PARENT AND ADOLESCENT/CHILD]

'I'll leave you alone together to do this, but will come back in 5 minutes to see how you've got on. Do you want to ask any questions before I go?'

Dealing with Questions

It is anticipated that parents and/or adolescent/children are likely to ask about what sort of 'scary' items are in the box. If this happens, use the following standard response:

'I'm afraid I can't tell you. It's up to you to have a look if you can'.

Post-Task: *'I would now like you both to answer some questions about how you felt [adolescent/child's name] got on with the task he/she just done. [DO RATINGS INDEPENDENTLY FOR PARENT AND ADOLESCENT/CHILD]. There is no need to think for a long time about your answers, just give me the first response that comes into your mind.*

2. SPEECH PREPARATION TASK

Procedure:

Seat the parent and adolescent/child at the table with paper and pens.

The task is divided into two parts: in part 1, the parent and child/adolescent are left alone to spend 3 minutes deciding on a topic to talk about and make notes about what is going to be included in the presentation; in part 2, the researcher re-enters the lab equipped with a portable video camera to record the child/adolescent giving their presentation – for a minimum of 1 minute and a maximum of 3 minutes. At the beginning of part 2, the parent is asked to stand in front of the camera with her child/adolescent to introduce the presentation.

Adolescent/child Instructions:

'I'm going to ask you to prepare a 3 minute speech about anything you like. This is to see how good you are at talking in front of others. You can talk about anything, your favourite hobby, favourite film, something you did recently, a day out with family, a holiday, or something to do with school. You can change the topic during the speech if you want. So that you have lots of things to talk about I'm going to give you 3 minutes to prepare before I ask you to give the speech. When I come back, I'm going to ask you to stand up and give the speech.'

Parent's instructions:

'This is a test of [child/adolescent's] presentation skills and social ability. I want to see how effective she/he is at preparing a talk and presenting it to an audience. I'd like you to sit here for support. Most kids find it a bit hard to get going on deciding what to talk about. You can help them, but only if you think she/he really needs it.'

To both:

'After 3 minutes I will come in. I will then switch this video camera on so that I can film you [adolescent/child] giving your talk; so I will be in the room with you. Before you begin, I will ask [parent] to stand in front of the camera with you to introduce your talk. Following that, we would like [child/adolescent] to give the talk, but if help is needed we will leave it to you [parent] to decide what is appropriate.'

Before we start, I would like you to answer some questions about how you feel about this task.

[PARENT AND ADOLESCENT/CHILD TO RATE INDEPENDENTLY WITHOUT VIEW OF EACH OTHER'S RATINGS. USE PRE-TASK RATINGS SHEET].

OK. So first of all I will leave you together for 3 minutes to plan the talk. I'll get the topic list and timer so that you can have it in front of you. Feel free to use the pens and paper if that would help you.'

Get the topic list and timer, press 'record' on the video recorder, put the topic list and timer on the table and say:

'See you in 3 minutes.'

Three minutes later: Toggle the camera across so it now focuses on the sofa for when the parent is watching the speech presentation. Knock on door and enter. Switch on freestanding video camera (facing child/adolescent). Ask the adolescent/child and parent (adolescent/child to be stood on cross on floor) to come and stand in front of the video camera so that the parent can introduce the presentation.

'Before you start, I would just like [parent] to briefly introduce you and your talk to the camera before sitting down on the sofa. So could you both come and stand in front of the camera to start with'.

Following the parent's introduction of their son/daughter, ask them to be seated on the sofa, next to the video camera and in view of their son/daughter.

The experimenter should start the countdown timer. Throughout the presentation, the experimenter should look at the camera and timer only – not directly at the child/adolescent or parent – and should not give feedback on how the task is going. If the parent asks a question about what she should do, respond with *'you can help however you feel would be most useful'*; if asked how much time is left this information can be given briefly.

Video 1 should film parent-child/adolescent until video 2 switched on. Then follow parent and remain on parent (clear view of face and body); video 2 – clear view of child/adolescent's face and body.

Three minutes later: If the child/adolescent has clearly finished and no longer speaking, or talking with parent about something else entirely, ask the child/adolescent if they have finished and if so end the task. If the child/adolescent finishes before 3 minutes, the in-room experimenter should continue to record until 3 minutes has been reached.

If the child/adolescent refuses to participate in the task, continue with the procedure and allow the parent to manage the situation as she sees fit (record this).

Post-Task:

'I would now like you both to answer some questions about how you felt [adolescent/child's name] got on with the task he/she just done. [PARENT AND ADOLESCENT/CHILD TO RATE INDEPENDENTLY WITHOUT VIEW OF EACH OTHER'S RATINGS. USE POST-TASK RATINGS SHEET].

Topic List

1. My favourite hobby
2. My favourite film
3. Something I did recently
4. A day out with my family
5. A holiday
6. Something to do with school

3. TANGRAM PUZZLE TASK

Procedure:

Seat the parent and adolescent/child at the table with the tangram puzzle and templates and read them the task instructions and get pre-task ratings. Following this, get the solutions sheet, press 'record' on the video recorder and give the solution sheet to the parent. Make sure not to show the solution sheet to the adolescent/child.

7-9 year olds: the two 5-piece puzzles; if they complete both of these within the 5 minute time period, enter the room and give them the square 7-piece puzzle

10-16 year olds: blue 7-piece puzzles initially and then the 9-piece ones if necessary.

Set the timer to 5 minutes, start, and then leave the room. Once the 5 minutes has elapsed, re-enter the room and finish the task.

Parent's Instructions:

'This is a test of your adolescent/child's ability. We want to see how good he/she is at thinking. [Parent] you are going to sit there for support and you will have the answers for interest. Most teenagers/children can do it but some find it a bit hard to get going. You can help if you think he/she really needs it. To do this test, you need to use these puzzle pieces to make the shapes shown here. [SHOW PUZZLE AND TEMPLATES] You will have 5 minutes to complete the puzzles and you can start with whichever one you like first.

Before we start, I'd like you to make some ratings again. [DO RATINGS INDEPENDENTLY FOR PARENT AND ADOLESCENT/CHILD]

I'll leave you alone together to do this, but will come back in 5 minutes to see how you've got on. Do you want to ask any questions before I go?'

Post-Task:

'I would now like you both to answer some questions about how you felt [adolescent/child's name] got on with the task he/she just done. [DO RATINGS INDEPENDENTLY FOR PARENT AND ADOLESCENT/CHILD]

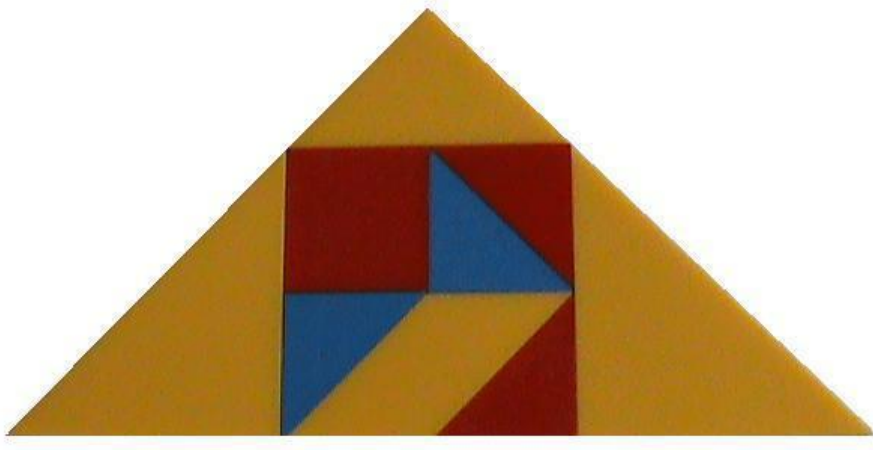
5-Piece Tangram Solutions



7-Piece Tangram Solutions



9-Piece Tangram Solutions



9.9 Appendix 9: Task instructions for Ambiguous Scenarios Task

Procedure:

Take the parent to the waiting room, while the adolescent/child sits down at the table with the researcher. All interviews must be recorded using a digital audio recorder; and participant ID numbers should be clearly stated by the interviewer at the start of each recording for later identification. Participant responses should be noted on the record sheets.

Instructions for adolescent/child:

'I am going to describe to you some situations that you might find yourself in. Some of these things might have happened to you before. For some, you might have to imagine what it would be like to be if that happened. The important thing is that you tell me what you would really think if it happened to you and what you would really do.'

When asking participants to make 0-10 ratings, they must be told to decide on one number. For example, if the adolescent/child says, "...between 4 and 5", ask them to choose either 4 or 5.

If participants respond with different ratings for different parts of a task (e.g. one rating for the start of the presentation and one for at the end), ask them what their rating would be in general.

When asking forced choice questions, participants should be told that neither choice may fit exactly what they would think, but should choose the one most like what they would think.

If the /adolescent/child seems are unclear what is meant by any of the 'control' questions, clarify that this is the amount they **COULD** control / make a difference to what happens (i.e. their potential to make a difference).

9.10 Appendix 10: Coding Scheme for Parent-Child Interaction Task

(N.B. Only Speech Preparation is provided as coding schemes for other tasks are very similar)

Coding Scheme for Speech Preparation (30th November 2009)

Parental Negative Behaviours

1. Parental anxiety

Maternal anxiety measures how anxious the mother appears during the speech preparation task. A mother scoring low on the scale will be **relaxed** during the task, and will show no or few signs of anxiety. A mother scoring high on this scale will appear “on edge” and tense during the task, and will show signs of anxiety. Three aspects of maternal anxiety should be considered: face, body and speech.

Examples of anxious or tense behaviours

Face

- Mouthing (e.g. biting or licking the lips).
- Fearful expressions (as distinguished from mock fear which some mothers may do while joking with their child).
- A nervous smile or laugh (only code as a sign of anxiety if the smile or laugh is clearly nervous).
- Facial twitches and grimaces.
- Rapid fluctuations in expressions e.g. a nervous smile or laugh rapidly followed by grimaces or fearful expressions.
- Nervous self-touching (particularly of the face and hair).

Body

- Rigid, awkward posture (often showing hunched/tense shoulders).
- Nervous movements of the hands (e.g. wringing of hands, fidgeting).
- Nervous movements of the feet.
- Rapid or unnatural movements.
- Holding hand(s) in an awkward fixed position.
- Continually adjusting clothes/hair.
- 08-0082 3rd min: Mother is holding the pens and fiddling with them.

Speech

- Rapid speech, as though the mother appears “hyper”.
- Stumbling over words.
- Fluctuating tone of voice.

- Worrying about running out of time e.g. 08-0066: Mother says, “You’ve only got 3 minutes” and seems agitated about running out of time. Another example, 08-0017: Mother repeatedly worries about running out of time (coded as a 4).

Examples of relaxed behaviour

- Relaxed, open posture
- Laughter
- No signs of anxiety

Factors to consider

- The mother needn’t be enjoying the task to score a 1 on this scale. A mother could be fairly stern throughout the task but show no sign of tension or anxiety so would still be given a 1.
- A mother who scores 1 has to be completely relaxed and show no signs of anxiety, while a mother who scores 5 will never appear relaxed.

Maternal anxiety scale (1- 5)

1. The mother is completely relaxed and at ease throughout the interval. She shows no signs of anxiety or tension.
The mother is generally relaxed. She shows 1 or 2 small signs of being “on edge” or anxious, but otherwise appears comfortable throughout the interval.
2. The mother is sometimes anxious/ “on edge” and sometimes relaxed. She shows 1 or 2 clear signs of anxiety OR 3 mild signs, but is relaxed at times.
3. The mother is anxious for the majority of the minute, **but is also relaxed at times**. She may show 2 clear signs and at least 1 mild sign of anxiety OR 3 clear signs OR 4 mild signs, but is also relaxed for at least a brief period in the interval.
4. The mother is clearly anxious and/or uncomfortable throughout the interval, **and is never relaxed**. She shows at least 3 clear signs or at least 4 brief signs of anxiety, and is never relaxed.

2. Passivity

Passivity is a measure of how **inhibited/withdrawn** and unhelpful the mother is during the preparation of the speech. A passive mother is not actively engaged in her child’s speech and does not help the child when necessary - she will seem uninvolved, with a general lack of guidance. The mother rarely acknowledges what the child is doing. Even if the child is competent in completing the task, an active mother will still show involvement by commenting on what he is doing.

A passive mother’s body language may be inhibited, making it seem as though she is not attentive to or interested in what the child is doing. For example, she may lean back in her chair, looking disinterested. Her tone of voice may also be flat and monotone, suggesting she is bored. Although a passive mother may still respond to the child, her responses are generally a little slow (overlaps with engagement).

Examples

- Sitting back
- Looking around the room
- Playing with the pens
- Being uninvolved

Factors to consider

- Some children are competent in the task and will just get on with writing for the duration for the minute, so the mother will say very little. These mothers should not be coded as passive, as long as they are still involved in what the child is doing (e.g. watching what the child is writing). A mother should only be coded as 1 or 2 if they display passive behaviour.
- A quick sip of a drink is not considered passive as long as the mother is paying attention to the child before and after drinking.

Passivity scale (1-5)

1. The mother shows no signs of passivity. She is completely involved throughout the interval.
2. The mother is slightly passive. She shows 1 small/ brief sign of passivity. She may be slightly uninvolved/ withdrawn, or a bit slow/ fail to respond to 1 or 2 cues for facilitation or request for help from the child.
3. The mother is moderately passive. She shows 1 clear sign of passivity (for more than a brief period of time, e.g. 10 seconds), OR she fails to respond on more than 2 occasions.
4. The mother is passive. She does not appear to be actively involved and quite a lot of her responses are likely to be too slow. The mother is characterised by a lack of speech and there are no structured approaches to guiding the child. There may be several awkward silences.
5. The mother is characterised by passivity. She appears inhibited/ withdrawn for the majority of the interval. Even if the child requires assistance, the mother just lets the child get on with the task himself.

3. Promotion of Avoidance

This measures the extent to which the mother allows/ enables the child to avoid the task. A mother who scores highly on this scale may ask questions or make statements that make the child believe that it is okay to stop. For example, if the mother says, "Do you want to stop now?" it indicates to the child that finishing is an option, and gives the child the opportunity to do so.

Alternatively, if the child independently decides to stop doing the task (e.g. leaving their seat and moving around in the room) and the mother makes very little/no effort to get the child back on task, she is permitting the child to avoid the task and should be scored highly on this scale. Similarly, if the mother stops trying to get the child back on task when there is still potential for the child to get back on task, then this is also promotion of avoidance.

Tone

It is important to note that mothers commonly use phrases like, “Do you want to write more about your holiday?” as a **cue or prompt** for the child to do the task. In this case, where the mother’s undertone was clearly requesting/ cueing for the child to get on with the task, **this is NOT considered promotion of avoidance**. (If unsure whether the mother said the phrase as a cue/ prompt or as an option to avoid the task, then the mother should be given a 2 rather than a 1 because this still gives the child the opportunity to opt out of the task.)

Whether behaviour is given a 2 or 3 for promotion of avoidance depends on the context and the undertone in which the phrase is said. If the intention of avoidance promotion is clear, this is given a 3.

Examples

- 08-0086: Mother tells child, “Just work your way though and stop when you want to.” (Coded as a 3.)
- 08-0087 4th min: Child doesn’t want to do task so mother says, “Ok, go and tell (the research assistant) that then.” (Coded as a 2.)

Factors to consider

- If the child is noticeably distressed about doing the task for a prolonged period, a mother who allows their child to stop should not be coded here, but would be coded on the sensitive responsiveness scale instead. (The mother should make some initial effort to continue the task though unless the child is extremely distressed.)
- Offering to do the writing for the child should **not** be considered promotion of avoidance, even if the child has not requested it (although this would be coded as intrusive).
- N.B. Promotion of Avoidance rarely occurs in the preparation phase.

Promotion of Avoidance scale (1-3)

Because promotion of avoidance does not occur very often in the speech task, this is only devised as a 3-point scale.

1. The mother shows no evidence of avoidance promotion. She keeps the task going and does not give the child the opportunity to stop (unless they are notably very distressed).
2. The mother shows some small degree of avoidance promotion. She makes 1 or 2 comments that give the child the opportunity to stop, but her tone of voice does not strongly imply that stopping is an option.
3. The mother shows a strong degree of avoidance promotion. She makes 1 or more comments that explicitly give the child the opportunity to stop, with a tone of voice that suggests stopping is a real option. Alternatively, she may say 3 or more comments with a mild tone of voice OR she may allow her child to stop doing the task without trying to re-direct him.

4. Overprotection

This refers to the mother going beyond what is required to comfort her child. It is an indication of over concern about the emotional state of the child where it is not warranted.

An overprotective mother will comfort or reassure the child about the task when the child's emotional state clearly does not warrant it, i.e. the child shows no signs of distress or is only mildly distressed or struggling. Alternatively, the mother may make no effort to withdraw her efforts to comfort the child when they are no longer needed.

Example

- 08-0074 5th minute: Mother says, "Don't be nervous, don't be nervous," even though the child is not worried.

Factors to take into account

- A mother who keeps asking task-related questions/suggestions should not be scored as overprotective here as they are focussed on the task.
- Taking over the task for the child in some way on its own should be coded as intrusive rather than overprotective, as judging whether a mother who takes over the task is overprotective is subjective.
- If the child requests the mother's emotional support or they are obviously distressed in some way then the mother who comforts or helps her child should not be coded as overprotective unless this response continues when it is no longer necessary.
- N.B. Overprotection rarely occurs in the preparation phase.

9.10.1.1

9.10.1.2 Overprotection scale (1-5)

1. The mother shows no sign of being overprotective towards her child.
2. The mother makes 1 brief/ mild overprotective comment e.g. saying, "There is nothing to be scared of," when the child is clearly not scared, OR she nonverbally comforts the child in a small way on 1 occasion when not necessary.
3. The mother is moderately overprotective. She may either make 1 strong or 2 mild overprotective comment(s) during the interval, OR she is nonverbally overprotective once for a prolonged period.
4. The mother is overprotective. She may make 2 strong or 3-4 mild overprotective comments. She may also nonverbally comfort her child for quite some time when not necessary.
5. The mother is very overprotective. She spends the majority of or the whole of the interval being verbally and/or nonverbally overprotective. She does not withdraw her efforts to comfort the child when the child no longer needs it.

5. Intrusiveness

Intrusiveness refers to the degree to which the mother lacks respect for the child's autonomy or is unnecessarily directive and controlling. A highly intrusive mother will

interfere in some way with her child's needs, interests, desires or behaviours, not only in regard to the speech but also if the child's goes off task. There are 5 different ways in which a mother might be intrusive:

1. Verbal intrusiveness (directives and commands)

In terms of verbal intrusiveness, rather than prompting her child with suggestions of topics to talk about, e.g. 'Maybe you could talk some more about Daddy', the mother directs the child by telling them what they should talk about, e.g. 'Talk some more about daddy'. (N.B. even though this is intrusive it would also be coded as facilitative on the facilitation scale).

A directive said in a relatively warm tone (not strongly demanding tone) is considered mildly intrusive (because it is still more controlling than making a suggestion or request), while a directive or verbal command said in controlling tone is considered strongly intrusive.

N.B. A lot of others will provide suggestions for their child by saying, "You **could** do this..." or "you **could** write that..." Although this is giving the child ideas for what to talk about, it should be coded as facilitative and not intrusive, because making suggestions in this way is not intrusive (unless said in a particularly intrusive tone).

Examples of verbal intrusiveness

- 08-0082 3rd min: Mother says, "Do bullet points."
- 08-0032 4th min: Mother decides exactly what is going to be written down e.g. "Okay then number 3, getting to Chuck's house."
- 08-0094: "Swap pens."
- 08-0062: "Draw your caravan. Do it in brown."

2. Interruptions

If the mother interrupts what the child is doing/saying with a question or comment, this should be classed as intrusive as she is restricting the child's sense of autonomy. (However, utterances of acknowledgment/ acceptance should not be classed as intrusive). If the mother and child start talking at the same time and the mother carries on, this is also classed as an interruption.

3. Making decisions for the child (setting the agenda)

Intrusiveness in the preparation stage also includes making decisions for the child by deciding what topic to talk about or overriding/ rejecting the child's choice of topic. (08-0024: The child wants to talk about hobbies but the mother says, "Why don't we talk about ideal day?" – this mum is very intrusive. 08-0056: Child picks hobbies and mother says, "You don't think holiday? Do you think holiday would be better?").

Simply making suggestions about what to talk about should not be coded, as the mother is just being helpful. For example, 08-0041: Child suggests hobbies but mother suggests holidays, and says, "Do you think? It's up to you". This is not considered intrusive. **The tone in which a suggestion is said is essential in determining whether or not the suggestion is intrusive.**

4. Bombarding child with questions

An intrusive mother may also set the agenda of the child's speech preparation by providing the child with a relentless stream of questions, preventing the child from coming up with his own suggestions and gaining a full sense of autonomy. (N.B If the mother asks a lot of questions because the child is anxious and doesn't want to speak e.g. 08-0082, then this should only be coded as intrusive if said in an intrusive tone because the mother is simply responding to the child's anxiety.)

5. Physical intrusiveness

Sometimes, mothers will write or draw on the paper instead of the child. Whether this is coded as intrusive is dependent on the context.

Not intrusive

- The child is struggling in the task and wants the mother to help.
- The child requests the mother's help and the mother agrees.
- The mother suggests that both of them take part in the task, e.g. she will do the writing and the child can do the drawing (combined effort).

Mildly intrusive

- The child is competent in the task but is happy for the mother to take over if she suggests it.

Strongly intrusive

- The child is competent in the task and does **not** want the mother to take over the task.
- The child is struggling in the task but does **not** want the mother's help (e.g. 08-0082 2nd min: Mother takes pen from child but he does not want her to; 3rd min: Child tries to take the pen back but she does not let him have it).

Other examples of physical intrusiveness include snatching the pen or paper from the child (e.g. 08-0062: Mother takes pencil from child in a mildly intrusive way).

Child's behaviour

The child's behaviour should be taken into account when coding intrusiveness. Reasonable and appropriate directions to the task are not intrusive, they are responsive so should not be coded here. Therefore, if the mother makes an intrusive comment/ behaviour in response to the child's behaviour, this should not be coded.

However, if these directives are carried out in an **unnecessarily intrusive** manner, these will be coded as intrusive. For example, if the mother responded to the child rushing through the task by using an explicitly intrusive verbal command, this will be coded as intrusive. (N.B. 1 point is knocked off the rating if it's a response.)

Factors to consider

- Intrusive remarks can also be facilitative so may also be coded also on facilitation.
- Dismissing the child's ideas (e.g. the child suggests talking about their fish and the mother says, "No, they're not really family.") should **not** be coded as intrusive. If said in a rude or insensitive tone, such comments would be coded as low warmth and/or sensitive responsiveness.

Intrusiveness scale (1-5)

1. The mother is not intrusive. She may say 1 verbal directive but this is not in an intrusive tone. Most of her ideas are phrased as suggestions or questions, and she allows the child to make all the decisions about what to write about.
2. The mother is mildly intrusive. She may say 1 verbal command (in a controlling and intrusive tone) or make 1 decision for the child. Alternatively, she may use 2 or 3 verbal directives that are not said in an intrusive way, OR she performs 1 mild physically intrusive act. Overall, however, her behaviour is not overly intrusive.
3. The mother is moderately intrusive. She may be verbally intrusive two times (i.e. says verbal 2 commands) or make 2 decisions for the child, or she may be strongly physically intrusive on 1 occasion. Alternatively, she may have said 1 or 2 verbal commands and performed 1 mildly physically intrusive act, OR performed 2 mild physically intrusive acts, OR said 4 verbal directives without an intrusive tone.
4. The mother is intrusive. She says 3 verbal commands OR she is strongly physically intrusive on 2 occasions OR she makes 3 decisions for the child. Alternatively, she may be strongly physically intrusive on 1 time and said 1-2 verbal commands. She may also be mildly physically intrusive 2 times and say 1-2 verbal commands. OR said 5 or more verbal directives without an intrusive tone.
5. The mother is strongly intrusive throughout the interval. She may be strongly physically intrusive on 3 occasions or more OR she is verbally and/ or physically intrusive together on 5 or more occasions. Alternatively, she may make 4 or more decisions for the child. On the whole the mother appears to set the agenda for the speech preparation, and does not let the child take part fully; she clearly acts as the "boss" who is in control of the whole situation.

N.B "Verbal commands" are directives that must be said in an intrusive tone. ("Verbal directives" are said in a non-intrusive tone.)

Parental Positive Behaviours

1. Encouragement

Maternal encouragement measures the extent to which the mother positively motivates the child to complete the speech preparation, regardless of 1. Whether the child needed the encouragement or not; and 2. Its actual effect on the child's behaviour (i.e. whether the child could be encouraged). By definition, encouragement in the literature measures the

extent to which the mother/ parent encourages the child to have autonomy in any tasks the child comes across in his life.

Highly encouraging mothers make the task seem positive and fun, and act to arouse the child's interest and curiosity in the task. They will support and encourage the child's suggestions and ideas, and may praise the child. Encouragement is **child-centred** – relating to the child's completion of the task rather than the mother's own interest in the task. In sum, encouragement is not related to the type/quality of questions the mother asks (as in facilitation) but to the way in which she asks them and how fun and appealing she makes the task seem in general in order to encourage the child to participate.

There are two aspects of encouragement: tone of voice and encouraging statements.

1. Tone of voice (nonverbal encouragement)

Highly encouraging mothers will inject enthusiasm through her tone of voice (i.e. impart degree of excitement into what she's saying,) so that it makes the questions she is asking, or what the child has said, seem interesting and positive. For example, she may use animated/ game-like tone of voice when discussing what the child could talk about. Conversely, the tone of voice in low-scoring mothers is dull and monotonous. (N.B. Tone is very important and should be given most significance when deciding between 2 encouragement ratings).

2. Encouraging/ motivational statements (verbal encouragement)

Verbal aspects of encouragement include motivational statements such as, 'That's right' and 'You can do it', to encourage the child to complete the task. Explicit praises of the child's effort and ideas, such as saying, "Well done", "That's lovely" and "Aren't you clever!" are also counted. Encouraging sounds (e.g. "mmmm") are also counted.

Factors to be taken into account when coding encouragement

- Tone of voice is very important in coding encouragement: it should be given most significance when deciding between 2 encouragement ratings.
- Mothers may be controlling and intrusive in their efforts to encourage the child; these mothers should score 1 point less on encouragement than a mother who uses the same statements but in a warm, encouraging tone.
- Mothers may need to be mildly controlling and assertive in their effort to encourage the child; these mothers should not be marked down on encouragement because they can still have an encouraging/ animated tone.
- Encouragement and facilitation are coded independently (although they often correlate). For example, mothers may provide facilitative guidance to the child by suggesting what to write, but they do not use an encouraging tone of voice or encouraging statements, so they would score low on encouragement but high on facilitation.
- Encouragement is related to the child's completion of the task only, rather than off-task behaviours.
- Unlike in the actual speech, active listening is not considered a critical aspect of encouragement in the speech preparation, hence will not be coded here.

Encouragement scale (1-5)

1. The mother is not encouraging. She does not make encouraging statements, she does not recognise the child's effort in the task, and her tone of voice may be flat and disinterested. She may still be involved and offer prompts to the child (i.e. she may still be facilitative), but she is neutral and does not make the task seem positive, fun and appealing.
2. The mother is mildly encouraging, i.e. for less than half the time. She may very occasionally make the task seem appealing/ fun, but overall her tone of voice is not encouraging. She may make an encouraging statement on 1 occasion.
3. The mother is moderately encouraging, i.e. for about half the time. She makes 1 or 2 encouraging statements to motivate the child and sometimes uses an encouraging tone of voice. Alternatively, she may use 3 or 4 encouraging statements without an encouraging tone of voice. OR the mother uses an encouraging tone throughout the interval but has not used any encouraging statements.
4. The mother is encouraging, i.e. for more than half of the interval. She has an animated or encouraging tone of voice throughout to make the task seem fun, and makes 1 or 2 encouraging statements. Alternatively, she may use 3 or 4 encouraging statements and sometimes use an encouraging tone of voice.
5. The mother is very encouraging. She has an encouraging style throughout the interval. She uses a playful, musical and motivational tone of voice throughout (which injects excitement into the task and arouses the child's curiosity). She uses 3 or more encouraging statements. Alternatively, she may use 5 or more encouraging statements and sometimes use an encouraging tone of voice.

2. Warmth

Warmth is the general emotional climate that the mother provides for the child, including physical affection, expression of positive regard for the child (praise and expressed affection), and general demeanour (e.g. smiling and tone of voice). There are verbal and nonverbal aspects of warmth.

Verbal warmth

This includes praise, e.g. 'That's lovely,' 'Well done,' 'That's very sweet,' 'Very good,' and expressed affection, e.g. 'Which one's which sweetheart?'

Tone of voice should be taken into account when coding verbal warmth. A warm tone is high and musical sounding, whereas a non-warm tone would be monotone, flat and lacking in emotion.

If the mother criticises the child (e.g. 'You didn't draw our house correctly') or is hostile towards the child (e.g. 08-0066 2nd min: Mother rudely dismisses all the suggestions the child makes), she will drop a point on the warmth scale.

Nonverbal warmth

This includes smiling at the child, making eye-contact, showing animated facial expressions, being oriented towards the child and laughing/joking with them. The mother may also touch the child in a warm, non-intrusive way, e.g. a warm mother may pat, stroke, hug or kiss her child. (NB. This is not so common with older children aged 7-12 years.) If the child is distressed, a warm mother will comfort them in a warm way.

Examples of non-warm mothers

- 08-0057: Mother never smiles and has a flat tone throughout, so would be given a rating of 1.

Factors to consider

- Warm behaviour should be scored even if carried out in an overprotective manner (although this will also be coded on the overprotective scale).

Warmth Scale (1-5)

1. The mother is not verbally or physically warm throughout the interval. Her tone of voice is flat/monotone or criticising/ hostile. She may have one very brief episode of warmth (e.g. smiles briefly once) but this is overshadowed by constant flat tone and a lack of affection. She very rarely smiles.
2. The mother is warm in some small ways. She may express subtle non-verbal warmth (e.g. smiling/ laughing) on 1-2 occasions and may occasionally have a warm tone of voice. She is unlikely to make a verbally warm statement or express verbal affection. She is unlikely to touch the child in a warm way if physical contact does occur. Alternatively, the mother may be moderately warm but have makes 1 critical or hostile statement.
3. The mother is moderately warm. She may maintain a warm tone throughout but display brief or limited signs of other warmth e.g. smiling. Alternatively, she sometimes uses a warm tone of voice and sometimes shows other signs of warmth, OR she may be a 4 on warmth but makes 1 critical or hostile statement.
4. The mother is warm. She may have a warm tone of voice throughout, and in addition shows other warm behaviour e.g. at least one warm statement, laughing with the child, smiling, eye contact. There may be brief moments where she lacks warmth, but she has an overall warm demeanour. Alternatively, she may be a 5 on warmth but make 1 critical or hostile statement, OR she may only sometimes use a warm tone of voice but shows lots of other signs of warmth.
5. The mother sets a general climate of warmth throughout the interval, both verbally and possibly nonverbally. She says warm statements, smiles and has a warm tone of voice for the majority of the interval. She may make frequent warm utterances of acknowledgement. If she does touch the child, she does so in a very warm way, although physical touching of the child is not necessary for a score of 5. (N.B. A mother cannot score 5 for warmth if she has a flat/dull tone of voice. If she makes many verbally warm statements but does not use a warm tone of voice, she should drop down one and score 4 for warmth.)

3. Maternal engagement

Maternal engagement measures the degree to which the mother is engaged/ involved in the preparation task. A mother who is highly and actively engaged in the task will display involvement and interest throughout the whole preparation.

An engaged mother will be eager to help the child prepare for the speech. They are likely to discuss the speech and its contents with the child, and may find the task very enjoyable. The mum is often excited and enthusiastic.

Engagement vs. encouragement

- Engagement and encouragement are coded separately because engagement and encouragement codes have different functions:
- Maternal **engagement** is a mother-only code (not a parenting code) and measures how much the mother is involved in the task **herself**.
- Maternal **encouragement** measures how much the mother is attempting to involve the **child** in the task and therefore is a parenting code.
- Although both codes take into account whether the mother is enthusiastic or not and so enthusiasm is double coded, the reason for measuring enthusiasm is different – one to capture whether the mother is enjoying the task herself (engagement) and the other is whether this enthusiasm could help to motivate the child (encouragement).
- Therefore, a mother could be engaged and enthusiastic in the **task** (engagement) without being highly encouraging; but a mother who is highly encouraging of their **child** (encouragement) will at least have a moderately to high level of engagement.

Engagement vs. passivity

The engagement measure is the result of the attempt to distinguish between non-passive mothers who are only slightly engaged with non-passive mothers who are more actively engaged. In other words, a mother who is non-passive is not necessarily very engaged; therefore the two scales overlap but are rated separately. For example, a non-passive mother (rating of 1) could lack enthusiasm in the task and so receives a rating of 2 or 3 on engagement (because she is not so engaged).

Examples of engaged behaviours

An engaged mother will show behaviours such as:

- Orienting her body towards the child/ leaning in towards the child.
- Providing lots of suggestions about what to write down.
- Asking the child about what he is doing.

In order to score highly on engagement mothers must also display enthusiastic behaviours such as:

- Showing an excited and/ or interested response to what the child is doing.
- Enthusiastic or musical tone of voice.
- Smiling (not in a fixed manner).
- Laughing (whether in a nervous manner or not).

Maternal engagement scale (1-5)

1. The mother is not actively engaged with the task. She makes no effort to get involved in the speech preparation and may appear bored for almost the entire interval.
2. The mother is engaged with the task in some small way. She displays 1 brief sign of enthusiasm, OR she is involved throughout but she lacks enthusiasm and appears bored.
3. The mother is moderately engaged with the task. She displays 1 or 2 clear signs of enthusiasm but also appear noticeably disinterested/ bored at times OR she is involved throughout the minute while displaying neutral affect (she is neither positive nor negative about the task).
4. The mother is engaged with the task. She displays 1 clear sign of enthusiasm with no negative behaviour, OR she will display 2 or 3 clear signs of enthusiasm but may be distracted or slightly uninvolved on 1 or 2 brief occasions. She is generally content about doing the task, displaying some positive affect, enjoyment and may have some laughter.
5. The mother is extremely engaged in the task for the whole minute, supporting the child and displaying repeated instances of engaged behaviour throughout.

Child Behaviours

1. Child anxiety

Child anxiety is a general measure of how confident and relaxed the child is during the preparation of their speech. Because the child will only just have been informed about giving the speech, child anxiety is likely to reflect anticipatory anxiety about giving the speech after the preparation period. An anxious child will seem ill at ease during the preparation period, appearing nervous and uncomfortable. They will, most likely, rely heavily on their mother for support. We will consider 3 elements of child anxiety: the general behaviour, the bodily manifestations, and the speech.

General Behaviour:

An anxious child is likely to be reluctant to prepare for their speech. They may explicitly refuse to make notes or draw pictures in preparation for the speech, freeze-up as if they can't talk, or simply take a long time to respond. (This is not because the question hasn't been heard, the child does not understand, or the child is just taking time to think of the answer). It may take several attempts at encouragement from the mother to get the child to respond. Although the child may seem more relaxed as the task progresses, a very anxious child will never seem fully at ease during their task. The child may move from the table/chair being reluctant to sit in the correct position for the task. Some anxious children will be explicitly distressed and may cry or get angry/have a temper tantrum.

Bodily Manifestations:

An anxious child will show clear manifestations of anxiety, both in facial expression and body language.

Facial expressions indicative of anxiety include: fixed/frozen expressions, nervous watchfulness, fearful expressions, sad expressions, mouthing (e.g. sticking tongue out or

biting the lips), a passive face with a fixed stare (possibly at the stranger), a nervous smile or laugh, facial twitches and grimaces. A nervous/anxious child may show rapid fluctuations in these expressions.

Bodily manifestation of anxiety include: a motionless or rigid posture (often with a hunching of the shoulders), nervous movements with the hands (e.g. wringing of hands), nervous self-touching (particularly of the face and hair), fidgeting.

Speech:

An anxious child is unlikely to speak freely and will probably require constant support (largely in the form of prompts) from the mother. It may take several attempts to get the child to speak/write their preparation for the speech. The child may stumble over some of their words or talk in a silly/babyish voice (use judgement here – the child may just be messing around).

Child anxiety scale

1. The child shows no obvious signs of anxiety.
2. The child seems anxious in a small way. They may show a small number of brief, mild indications of anxiety/shyness during the preparation of their speech but overall they may seem relaxed and comfortable. Or the child does the task but he can feel the pressure of the time. He rush the task or asking his mum how mum how much time he has left (consider the tone of voice and if the child seems not comfortable. A few children ask their mum many times to check the timer and they don't look at ease E.g. 08-0183 3rd, 4th and 5th minute. 08-0012, 4th minute).
3. The child seems moderately anxious during the task. They show more 2 or more clear signs of anxiety/shyness during the task, or one clear sign for the majority of the minute. Overall they may contribute adequately but seem reluctant to do so and are likely to appear uncomfortable for more than just a brief episode.
4. The child seems anxious for over half of the task. They show more than three different clear signs of anxiety during the preparation of the speech. They are likely to rely on their mother for support and appear uncomfortable for over half the task. They are quiet for a lot of the task and are reluctant to contribute, but may, however, attempt to initiate speech/come up with ideas independently or appear more comfortable on a small number of occasions (08-0185 the child doesn't want to do the task and start crying).
5. The child's anxiety is pervasive and strong for the majority of the task. They do not look comfortable and relaxed at any time and may show clear signs of distress. They are quiet for most of the task and require constant support from their mother throughout the task.

N.B. in the context where the child is fidgeting but does not show other symptoms of anxiety, then code 2 in anxiety.

2. Child avoidance

Child avoidance measures the extent to which the child avoids preparing for the speech. A child may show verbal and/ or nonverbal avoidance during the task.

Low-scoring children on avoidance will generally display some brief signs of avoidance such as refusing once to approach the task.

He may avoid approaching or touching the paper and the pens (find examples). He may also physically distance himself from the table. In rare occasions, a child may avoid doing the task by giving verbal commands to the mother.

Children who score highly on child avoidance will avoid doing the task in different ways, e.g. by saying “Mummy, can we do it together?” or “I don’t want to do this” or asking the Mum to do the writing? when the mother asks the child to approach the task.

A child who will refuse to approach the task even when prompted a few times should be coded as strongly avoidant.

Examples of child avoidance

Refuse to start the task (e.g. “I do not want to do it!”) or requesting the mother to do the task (e.g. “Can you do it?”).

Physically distance himself from the table (08-0087 2nd minute)

Factors to be taken into consideration

On rare occasions, a child may avoid doing the preparation by giving verbal commands to the mother (e.g. for mum to do writing, come up with ideas for what to talk about). This is considered as strong avoidance and will be given a 5.

If the child actively seeks to avoid the task before the mother even asked the child to do it, then this should at least be rated as a 3.

When coding child avoidance, one has to take into account how much the mother has tried to encourage/ prompt the child. If the mother has not encouraged him enough, then avoidance scale should be relatively lower.

Child avoidance scale

1. The child shows no avoidance of approaching the task.
2. The child shows one clear sign or two brief signs of avoidance. He may show reluctance to approach the task on one occasion but will do so when prompted by the mother or with her assistance. He may also move his body slightly away from the table.
3. The child is moderately avoidant of the task. He is not able to approach again the task quickly after he has moved away from the table or after a short off-task period. He may approach the task eventually with some of the mother’s prompts.
4. The child is avoidant of the task. He is not able to approach the task himself even when the mother has prompted for at least three times. He may also run or walk away from the table and refuse to come back on the task. (08-0127: the child

doesn't approach the task. 08-0185: the child says "I don't want to do it" a few times)

5. The child is characterised by avoidance of doing the task. He is not able to approach the task himself even with continuous prompts from the mother. He may run away a very long distance from the table. He will also move his body further away if the mother tries to bring the pen and paper closer to him (08-0118: the child sits down on the sofa and refuses to go back to the table).

9.11 Appendix 11: Coding scheme for Ambiguous Scenarios Task

Ambiguous Scenarios Interview (Child/Adolescent Self Report Version)

Amended coding scheme (revised by PW/CC 11 December 2014)

Background

Children/adolescents are given 12 scenarios in which it is not clear what is happening. They are asked to give an explanation for the situation and to say what they would do. These responses are coded by someone who is 'blind' to group and trained to a high level of reliability.

Although this seems straightforward, it requires a high level of concentration to not make mistakes. Therefore it is really important that you do the coding in a quiet room away from any distractions. Some of the responses will be ambiguous and therefore we would encourage you to discuss the coding with someone who is reliable in using the scheme.

If the participant's responses are consistently in the 3rd person, assume they are talking about themselves.

1. Threat Codes

Explanations are coded as threat (1) or non-threat (0). See Table 1 for examples (including some more ambiguous responses)

A **threat response** is coded when the explanation could indicate a potential threat (includes social and physical).

- This includes an answer referring to fear/anxiety.
- However, if a threat response is given, but this is then moderated or played down to an extent where the child/adolescent does not appear threatened, such as the dog is '*just barking*' or '*it's barking but that doesn't bother me*', the response should then be coded as 'non-threat'.
- If multiple responses are given and the experimenter hasn't managed to get one final response, then code 'threat' if there is *any* threat.

A **non-threat response** is coded when the explanation could not be seen as indicating threat.

- It is also coded as non-threat if a response is not given (e.g. 'don't know' or 'not sure').
- If the response is ambiguous and on discussion with another trained rater, it is not clear how to code the response, it should be coded as 'non-threat'.

Table 1. Examples of threat and non-threat responses for each question.

Question	Threat	Non-Threat
1. You notice at school one day that a favourite book of yours is missing.	Someone took it Someone has it It's been stolen	Someone has borrowed it Left it at home Lost it
2. You see the School head teacher walking around the school grounds and they have been asking other students/children where you are.	I've done something wrong Might get told off	They want me to do something Forgot to finish some work To do a test
3. You are staying over at a friend's house and their parents seem to be very angry.	They don't want me to stay I've done something wrong Us being noisy	They are arguing Something their child has done Something got broken
4. You see a group of kids from another class playing a great game. When you walk over to join in they are laughing.	I'm not good enough Don't like me They think I'll be rubbish	Said something funny Something in the game They are having fun
5. You arrange to have a party at 4 o'clock and by half past 4 no one has arrived.	They didn't want to come They are having a party together They don't like me Gone to another party	They are stuck in traffic They are being fashionably late They forgot
6. You are showing your school project in front of the class and two students/children at the back of the class are giggling.	Project is silly/rubbish Think theirs is better I've made a mistake	Talking about something funny It's a joke Something outside
7. You are playing inside/at home and your dog runs to the door and starts to bark and growl at the door.	It's a stranger Someone I don't know Someone trying to get in Dog think intruder He doesn't want anyone to come in	Someone is at door They have seen something Weird noise outside
8. On the way to school you start to feel sick in the tummy/your stomach.	Something I've eaten I am ill I am worried Eaten something I don't	I ate too much food Car sick From looking down Period

	like Going to school	Being thin
9. You are lying in bed at night when you hear a big crash in the house.	It's a burglar Someone has fallen over/is hurt	Something has fallen/got knocked over The cat/dog My brother/sister
10. You are at a friend's house and the phone rings in the middle of the night.	There is an emergency Something bad has happened There's been an accident	Parents phoning to check on me Mum wants me to come home Something urgent/important
11. You are walking to a friend's house and a big dog comes up to you.	It might bite me It might bark Growl but not attack Climb all over me Just sniff and bark – but I don't like that Jump on you	Walk up and sniff me At the worst, jump up – I like big dogs Just barking Don't think it will bite
12. You are reading and cannot see the words properly.	Something is wrong with my eyes I need glasses/eye test Stress or anxiety Eyes have gone funny Eyes hurting	Something has got in my eye I'm tired Writing too small Eyes have gone blurry No glasses

2. Avoidance Codes

Explanations are coded as avoidant (1) or non-avoidant (0). See Table 2 for examples (including some more ambiguous responses).

An **avoidant response** is coded when the response involves escape or avoidance of the situation.

- This includes trying to push/block the thought out, leaving or hiding (e.g. run away, try not to think about it).
- This also includes if the response indicates avoidance of carrying on or managing the situation
- Avoidance involves a conscious effort to avoid, so if the response indicates the person would ignore the threat by carrying on engaging in the activity (e.g. by walking past the dog, going to school with a stomach ache, continuing with the presentation) and try not to let the situation bother them, then this should be coded as 'non-avoidant'.

- If multiple responses are given and the experimenter hasn't managed to get one final response, then code 'avoidance' if there is *any* avoidance.

A **non-avoidant response** is coded when the explanation includes carrying on or taking action in order to change the situation. This includes:

- Both positive and negative actions.
- Telling someone who can bring about change on the child/adolescent's behalf.
- Doing nothing, ignoring something because of a lack of awareness of it and (as illustrated above), carrying on with the activity and trying not to let the situation bother them.
- If the response is ambiguous, e.g. 'I'd leave the phone to ring and see if someone answers it', or 'wait for friend to ask what's up and then apologise if about me' code it as non-avoidant.
- 'Don't know' or 'not sure' should also be coded as non-avoidant.

Table 2. Examples of avoidant and non-avoidant responses for each question.

Question	Avoidant	Non-Avoidant
1. You notice at school one day that a favourite book of yours is missing.	Should have kept it safe Feel bad	Wait for it to turn up* Look for it Ask if anyone has seen it Buy a new one Accept lost
2. You see the School head teacher walking around the school grounds and they have been asking other students/children where you are.	Hide Run away	Wait and see what happens* Go up to him/her Say sorry Tell them the truth
3. You are staying over at a friend's house and their parents seem to be very angry.	Go home Keep out of their way Keep quiet	Let them sort it out* Nothing, it's not my family* Try and calm them down Ask friend what is wrong Ask if I can stay another day Feel worried/terrible Stand awkwardly Ring mum
4. You see a group of kids	Walk away	Don't show I'm anxious

from another class playing a great game. When you walk over to join in they are laughing.	Move on Stop playing	and go up Ask why they are laughing Join in Ask them why and if bad walk away
5. You arrange to have a party at 4 o'clock and by half past 4 no one has arrived.	Sit there and try to forget** Don't invite them again	Wait for them to come Tell yourself they'll arrive soon Call/text them Ring their mums Can't do anything Sit by self Go out instead Ask mum why
6. You are showing your school project in front of the class and two students/children at the back of the class are giggling.	Walk out Don't go up again	Nothing Ignore it Try to carry on with the presentation Ask them to stop Get angry
7. You are playing inside/at home and your dog runs to the door and starts to bark and growl at the door.	Run upstairs Walk away*** Don't answer door	Ignore them Tell him to stop Calm him down Let him out
8. On the way to school you start to feel sick in the tummy/your stomach.	Go home Go to the medical room Go to the help centre	Nothing See how it goes Forget about it Try to calm down Try and blank it out Keep on going to school Tell the teacher Tell mum Tell nurse
9. You are lying in bed at night when you hear a big crash in the house.	Hide under quilt Keep as quiet as I can	Ignore it Go back to sleep Stay in my bed/room See if anyone's up Check what happened
10. You are at a friend's	Hide under covers	Try not to worry

house and the phone rings in the middle of the night.		Not worry about it Go back to bed Leave the phone Switch phone off Answer the phone Stay in bed
11. You are walking to a friend's house and a big dog comes up to you.	Keep out of its way Run Hide Wait for it to go*** Tell owner to take dog away Not aggravate it Step back	Ignore it Stand still Try and walk on Laugh Stroke if friendly See if owner will come Throw ball
12. You are reading and cannot see the words properly.	Feel really worried Run around screaming Stop myself Stop reading and have a drink	Nothing Shut my eyes Take a rest/sleep Move on in the book Go to optician

* *Implies they are carrying on with the activity*

** *"Try to forget" implies they are trying to suppress their thoughts and actively try not to think about it*

*** *"Wait for it to go" implies active avoidance*