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The effect of anxiety level, knowledge and parental influence on children's responses to ambiguous situations

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ABSTRACT

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THE EFFECT OF ANXIETY LEVEL, KNOWLEDGE AND PARENTAL INFLUENCE ON CHILDREN'S RESPONSES TO AMBIGUOUS SITUATIONS

The factors contributing to anxious children's tendency to interpret ambiguous situations as threatening and to subsequently avoid these situations are considered. The current status of the empirical literature for factors that may contribute to the onset and maintenance of these tendencies is examined. There is initial support indicating that anxious children may know which strategies are helpful in reducing anxiety, but do not use them. This is investigated further in the empirical paper by comparing how children predict another child would respond, with how they report they would respond in the same ambiguous situations. The expected difference between the solutions High-Anxious children predicted other children would use, and the solutions they themselves would use was not found.

The literature also highlighted the role of the family, particularly as parents of anxious children are likely to be anxious themselves. The interactions between children and their parents may enhance children's use of avoidant strategies. The empirical paper attempted to empirically manipulate one variable of these interactions. The impact of parents modelling threatening interpretations to the ambiguous situations was manipulated. Children were asked to imagine that their parent modelled either a threatening on non-threatening interpretation to the situations. Children produced more avoidant responses after they imagined their parents had pointed out threat.

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Literature Review

Factors affecting children's response to ambiguous situations: The contribution of learning, cognitive, genetic and family influence

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Factors affecting children's response to ambiguous situations: The contribution of learning, cognitive, genetic and family influence.

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Factors affecting children's response to ambiguous situations: The contribution of learning, cognitive, genetic and family influences

Abstract

Reviewing the literature on childhood anxiety reveals two consistent findings. Anxious children display a bias towards interpreting ambiguous situations as threatening and they also appear to have a tendency to avoid stimuli that they perceive as threatening. Avoidance of stimuli may lead to children avoiding situations that are important for their development. In addition, avoidance prevents children from learning that the stimulus is not threatening. This review examines the status of the literature for proposed mechanisms by which avoidance towards ambiguous situations originates and is maintained. Understanding these mechanisms will enable the development of interventions to address avoidance and children's anxiety. The relative contribution of aversive learning experiences, cognitive factors and family factors are reviewed. Limitations of the current literature and future research directions are highlighted.

Factors affecting anxious children's reponse to ambiguous stimuli: The contribution of learning, cognitive, genetic and family influence

Fear and anxiety are normal human emotions, and when faced with a clear threat we are evolutionarily predisposed to experience these emotions. Distinguishing threatening stimuli from non-threatening stimuli, and avoiding any stimuli that are dangerous is likely to have a function for survival. Fear is considered an integral and adaptive aspect of development (King, Hamilton, & Ollendick, 1994). Throughout childhood there are a number of fears that appear to be developmentally appropriate (Gullone, 2000), although normal fear appears to be relatively short lived and mild in intensity. Marks (1987) has described how normal fear and anxiety develops, following a relatively orderly sequence. This sequence begins with fear of sudden noises or of being startled, anxiety about the proximity of caregivers, with anxious attachment behaviour when separated from the caregiver. Later children develop fear of strangers, followed by more specific fears of objects or events. Fears appear to warn the individual of their vulnerability to social sanctions (social threat) or physical harm (physical threat) (Beck, Emery & Greenberg, 1985).

However some children and adults experience anxiety towards a wider variety of stimuli. They experience fears and anxieties that are not developmentally appropriate, and are out of proportion to the demands of the situation (Marks, 1969). Normal anxiety differs from anxiety that could be considered clinically significant depending on developmental appropriateness, severity of anxiety, and impairment caused in functioning. High levels of fear and anxiety can cause problems for children and their families because it involves subjective distress and often avoidance of feared stimuli or situations (such as school, or peers), which can be hypothesised to have a

detrimental effect on development (Wells & Vitulano, 1984). Childhood anxiety has been reported to be associated with significant impairments in peer relationships and general social competence (Kashani & Orvaschel, 1990).

It appears that when distinguishing threat from non-threat, some individuals are more likely to perceive certain stimuli as threatening and develop a fear response when these stimuli are encountered. Children are likely to avoid these stimuli and be denied the opportunity to experience and learn that these stimuli are not harmful (Mowrer, 1939). Therefore, the ways in which children perceive and respond to ambiguous stimuli appear to affect whether or not they are fearful of them. Therefore it will be important to explore the factors influencing children to perceive ambiguous stimuli as threatening and to avoid potentially threatening situations. This review will examine the current status of the literature for both child specific and family factors.

Child specific factors may play a role, particularly aversive learning experiences which have taught them that particular stimuli are potentially threatening, the cognitive processes by which stimuli are appraised as threatening or non-threatening, their perceived ability to cope, knowledge about avoidant or approach strategies, and choice of response strategy. Family factors are also likely to play a role in childhood anxiety, especially as parents of anxious children have a high likelihood of being anxious themselves (Last, Hersen, Kazdin, Orvaschel, & Perrin, 1991). The transmission of anxiety could be expected to influence children's perception of stimuli and their response to stimuli perceived as threatening in several ways. Firstly, a predisposition to experiencing high levels of anxiety may be genetically inherited. Alternatively the environmental influences experienced in the family may contribute to children's responses to ambiguous situations. This could be due to an insecure attachment with the primary caregiver, parents' modelling threatening interpretations and avoidant

responses, reinforcing avoidance with praise and attention, or particular aspects of child rearing styles, such as being critical or overprotective.

Anxious children are likely to experience many of these influences, and so their relative importance, and the relationship between them, needs to be determined in order to develop and test out successful intervention programmes. The current status of the literature for the contribution of each of these factors will be reported, and future research directions proposed.

Presentation, prevalence and co-morbidity of childhood anxiety disorders

Childhood disorders, including anxiety disorders, have been classified in two ways. Firstly, using categorical models, for example DSM-IV (American Psychiatric Association, 1994), which represent phenomena that are present or absent, depending on whether a set threshold of number, severity and duration of specific symptoms has been reached. Dimensional models, on the other hand, recognise the distribution of emotions and behaviours across the whole population and assume a normal distribution of symptoms. Some instruments are designed to assess children on a wide variety of dimensions, such as Achenbach's Child Behaviour Checklist (CBCL) (Achenbach & Edelbrock, 1983), whereas others measure one dimension of psychopathology, such as the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1985). However, it is not clear how normal fear is related to the development of disorders, although it might be assumed that children scoring high on dimensional measures of anxiety would be likely to be classified as having an anxiety disorder, according to DSM-IV.

The main clinical diagnoses for anxiety disorders in children are categorised with adult anxiety disorders in the Diagnostic and Statistical Manual of Mental

Disorders (DSM-IV; American Psychiatric Association, 1994). The exception is separation anxiety disorder (SAD), which is considered a disorder first diagnosed in infancy, childhood or adolescence. SAD is characterised by developmentally inappropriate anxiety about separation from home or from a major attachment figure. The other main diagnostic categories for anxiety disorders are as follows: Generalised Anxiety Disorder (GAD), which is characterised by "At least six months of persistent and excessive anxiety and worry"; Social Phobia, which is identified by "Clinically significant anxiety provoked by exposure to certain types of social or performance situations, often leading to avoidance behaviour"; Panic Disorder, identified by "Recurrent unexpected Panic Attacks about which there is persistent concern"; and Specific Phobia, which is "Clinically significant anxiety provoked by exposure to a specific feared object or situation, often leading to avoidance behaviour" (DSM-IV; APA, 1994, p.393). Two further disorders that are classified along with the anxiety disorders are Post Traumatic Stress Disorder (PTSD) which is characterised by "The re-experiencing of an extremely traumatic event accompanied by symptoms of increased arousal and by avoidance of stimuli associated with the trauma" and Obsessive Compulsive Disorder (OCD) characterised by "Obsessions (which cause marked anxiety or distress) and/or by compulsions (which serve to neutralise anxiety)" (DSM-IV; APA, 1994, p.393).

In previous versions of DSM (DSM-III; American Psychiatric Association, 1980), childhood anxiety disorders were classified separately from adult anxiety disorders and included two additional diagnostic categories, Overanxious Disorder (OAD), which is now part of GAD, and Avoidant Disorder of childhood (now part of Social Phobia). There is evidence for consistency between DSM-III and DSM-IV, as Kendall and Warman (1996) demonstrated that a child diagnosed with OAD would be

likely to receive a diagnosis of GAD in DSM-IV and a child diagnosed with Avoidant Disorder would likely be diagnosed with Social Phobia in DSM-IV.

Epidemiological studies have found that anxiety disorders in childhood are more prevalent than any other childhood disorder. Community based samples have found prevalence rates of between 5.7% and 17.7% (e.g., Beidel, 1991; Kashani & Orvaschel, 1990). However, as described above the criteria for diagnosing anxiety disorders in childhood has altered and therefore, more up to date studies are needed. A prevalence rate of SAD of 3.5-4.1% for preadolescent children in the general population has been found, (Anderson et al., 1987; Costello et al., 1988). Prevalence rates in preadolescents have been found to be between 2.9% and 4.6% for overanxious disorder, less than 1% for social phobia, 2.4-9.2% for specific phobias (Anderson et al., 1987; Costello et al., 1988). In Anderson et al.'s study of 792 children, there were no reports of children with panic disorder.

There are high levels of co-morbidity within the anxiety disorders. In clinical studies, up to 50% of children with separation anxiety or overanxious disorder had another concurrent anxiety disorder (Last, Hersen, Kazdin, Finkelstein & Strauss, 1987). In general population studies, co-morbidity among anxiety disorders has been found for up to 36% of children with an anxiety disorder (Anderson, Williams, McGee & Silva, 1987; Kashani & Orvaschel, 1990). In addition, anxiety disorders have high levels of co-morbidity with other disorders, particularly depression with rates of 69% in adolescents (Kashani et al., 1987) and 17% in preadolescents (Anderson et al., 1987). There are also high co-morbidity rates with attention deficit hyperactivity disorder (ADHD), with approximately one third of children with anxiety disorders also having a diagnosis of ADHD (Anderson et al., 1987). In addition, 2.4% of Anderson et al.'s total sample had a diagnosis of both conduct disorder and anxiety disorder. This finding has

been replicated in children referred to clinics, where 40% of boys with anxiety disorder also had concurrent conduct disorder (Walker et al., 1991).

A few studies have investigated the long-term prognosis of childhood anxiety disorders. These studies have methodological weaknesses in that they are either retrospective studies (and prone to memory distortions) or prospective studies over a short term (Lodge & Tripp, 1995). The studies that have been carried out have suggested that anxiety disorders are not stable in childhood. Last, Perrin, Hersen, & Kazdin (1996) found that 82% of children referred for anxiety disorders no longer met criteria at follow-up three to four years later. However, one third of the children had developed new disorders, in particular new anxiety disorders. Symptoms of anxiety that are sub-clinical may be more stable. Ialongo, Edelsohn, Werthamer-Larsson, Crockett & Kellam (1994, 1995) found that self-report anxiety symptoms were moderately stable over four months in the first grade of school, and significantly predicted anxiety in the fifth grade. This suggests that anxiety symptoms may be more stable than the specific disorders.

Learning theory

Theories of classical and operant conditioning have attempted to explain the acquisition and maintenance of anxiety and fear. The application of the Pavlovian model of classical conditioning (Pavlov, 1927) has been applied to the acquisition of anxiety. The theory proposes that anxiety originates when an unconditioned stimulus (UCS) that consistently evokes anxiety as an unconditioned response (UCR) is paired in close temporal proximity with a conditioned stimulus (CS), which does not initially elicit anxiety. With repeated pairing of CS and UCS, the CS comes to elicit the anxiety response, without the occurrence of the UCS. Therefore, a previously neutral

stimulus comes to elicit fear, through repeatedly being paired with trauma or pain. Stimulus generalisation may occur, if the stimulus is similar to the CS, but has never previously been paired with the UCS.

Empirical evidence for the role of classical conditioning has mostly come from animal studies. Fear has successfully been conditioned to previously unaversive stimuli in rats (e.g., Le Doux, 1994). Ethical considerations have prevented this kind of study being conducted in humans, although there is an early report in the literature of an infant who learned to display conditioned fear to a white rat, by repeated pairing of the white rat with a loud noise (Watson & Rayner, 1920).

According to the laws of classical conditioning, extinction of the fear would be expected if the child had contact with the stimulus in the absence of trauma. However, extinction of fear does not always occur. In order to explain this, a two-factor avoidance theory was proposed (Mowrer, 1939). According to this theory, fear is acquired through classical conditioning. The second factor proposed that the individual will do things to reduce anxiety, such as avoiding the anxiety-provoking stimulus. Therefore avoidance will be reinforced and more likely to reoccur. Avoidance means that the individual does not have repeated exposure to the feared stimulus and therefore habituation does not occur.

In Mower's (1939) model, avoidance is learned by operant conditioning. Operant conditioning is based on Thorndike's (1911) Law of Effect, which proposed that animals were more likely to make responses that were followed by satisfaction, and less likely to repeat actions that had been followed by discomfort. An operant is a behaviour that is affected by its consequences, and learning may occur by direct experience of a behaviour being rewarded or punished (contingency-governed learning), or by verbal descriptions of contingencies which may have never been

associated with the behaviour in the past (rule-governed learning). Avoidance is reinforced because it leads to the reduction of the aversive experience of anxiety. Therefore, both the direct response-contingencies anxious children have actually experienced and the beliefs they have about the likely outcomes of responses are important to consider in the development of child anxiety (Hayes & Hayes, 1992).

Learning theory attempts to explain the acquisition of specific phobias and the development of fear reactions, particularly avoidance, to previously innocuous stimuli. However, in its original form the theory has several limitations. Firstly it does not explain more diffuse anxiety as seen in generalised anxiety disorder. Secondly, often the onset of all fears and anxieties cannot be attributed to an aversive experience. For example Graham and Gaffan (1997) found that in children and adults who were afraid of water, there was no clear evidence that fearful and non-fearful groups differed in incident of aversive water-related experience before fear onset. Conversely, not everyone who experiences pain and trauma acquires fear (Rachman, 1977). Thirdly, the individual does not need to directly encounter both the CS and UCS. Vicarious transmission of fear has been documented and experimentally manipulated, where observers can develop fear from watching others develop fear, known as modelling, (e.g., Bandura & Rosenthal, 1966; Berger, 1962). There also appears to be an uneven distribution of fears, with some fears being more common than others, such as fears of spiders (Seligman, 1971). Traditional classical conditioning would propose that fear could be conditioned to any stimulus equally.

Contemporary models of classical conditioning have attempted to address some of these criticisms. For example, Davey (1992) proposed that there might be a cognitive element to the acquisition of fear. He suggested that there is a prior expectancy bias to the extent the subject expects the UCS to follow the CS. This

individual appraisal can explain why some people develop fears and others do not after the same experiences. The individual's evaluation of the trauma may influence whether or not it results in fear. The uneven distribution of fear may be due to an enhanced predisposition to associate some stimuli with trauma, because of its evolutionary relevance as a potential threat to survival (Seligman, 1971).

In summary, contemporary classical conditioning models may explain one means by which fears may be acquired. Operant conditioning, by reinforcement of avoidance, appears to have a significant role in the maintenance of fear. However, the theory accounts for avoidance behaviours, rather than anxiety per se (Delprato & McGlynn, 1984), and also a greater support for the role of operant factors in the maintenance of fear has been shown for phobic disorders than anxiety disorders. Therefore, there are likely to be additional pathways to fear acquisition and maintenance.

Cognitive factors

The literature reported above suggests that the individual's cognitive appraisal of the situation, is important to consider along with their learning experiences. This section will further consider the role of cognitive processes in childhood anxiety. Adult models of anxiety have stressed the importance of cognitive processes in anxiety. Beck (1986) proposed that the cognitive focus in anxiety is of threat or danger. The individual appraises the degree of danger a situation poses, and their ability to cope with it. If there is danger and the person has a belief that they cannot cope with the danger a "vulnerability set" is triggered. This includes hypervigilance to danger cues, and selective abstraction of the cues to the exclusion of other clues, magnification of

the degree of threat and overgeneralization of the environmental cues that represent danger.

Kendall (1985) related the cognitive model of anxiety to children. He proposed that bodies of information are organised in memory, according to schemas. The schemas facilitate information that fits with the schema and interferes with the processing of information that does not fit with the schema. This theory suggests that anxiety disorders arise in children whose schemas around threat or danger are well developed. Therefore, the schemas disproportionately focus on threat-relevant information. It is thought that anxious children will display cognitive distortions to selectively attend to signals of threat or interpret ambiguous situations as dangerous or threatening.

Daleiden and Vasey (1997) applied an information-processing model to anxiety in children, based on the information-processing model of aggression in childhood proposed by Crick and Dodge (1994). The model distinguishes six stages of information processing: encoding; interpretation; goal selection; response access or construction; response selection; and behavioural enactment. During the encoding stage, some information is selected for further processing, and other information is ignored. In anxiety disorders, it is proposed that children will attend to threat information, because the threat schemas are active consistent with Kendall (1985). In the interpretation stage, meaning is attached to the information. It would be expected that anxious children would interpret ambiguous information as threatening. Goal selection in anxious children is likely to involve avoiding the situation. Avoidant responses may be more accessible than approach or problem solving strategies. This may be because anxious children are deficient in knowledge of other strategies, consider that escape or avoidance are more effective than other strategies, or believe

they are more effective at carrying out these strategies. Responses are selected on the basis of expectations of self-efficacy, or beliefs about the consequences of the actions. Finally the responses are enacted. Evidence for the various stages of this model will be presented.

Attention biases for threat

Adult anxiety research has demonstrated that anxious adults frequently display cognitive biases in the processing of emotional stimuli (e.g., MacLeod, Matthews, & Tata, 1986). High-Anxious individuals show an attentional bias for threatening stimuli. They are more likely to interpret ambiguous material as threatening and tend to think that negative threatening events are more likely to happen to themselves (Butler & Mathews, 1983). A commonly used paradigm for assessing attentional bias is the dot probe task. MacLeod et al (1986) presented participants with two words appearing one above the other in the centre of a computer screen. Word pairs are selected, where each word was either a threat word or a neutral word. Participants were asked to read the upper word aloud and then are asked to detect a small dot, which may appear in the position of the upper or lower word. The time taken to detect the dot is measured to indicate the extent visual attention was directed to the location where the dot appeared. Anxious participants responded faster to dots appearing in the position of threat words than in the position of neutral words, suggesting that they were attending to the threat word.

The same effect has been found with children (Vasey, Daleiden, Williams, & Brown, 1995). A group of 12 clinically anxious 9- to 14-year-old children was compared with a matched control group on the same paradigm. Clinically anxious children were significantly faster at detecting dots when they followed threat words

compared to neutral words. However, this was only found when the dot appeared in the lower position, and not when it appeared in the upper position. This may have been due to the small sample size. Normal controls responded with the same speed to dots that followed threat and neutral words. These results were replicated in a sample of non-referred test anxious children (Vasey, El-Hag, & Daleiden, 1996). High-test anxious children showed an attentional bias towards threat cues. However, elevated state anxiety did not increase attentional bias towards threat.

Interpretation bias for threat.

The bias towards threatening stimuli has also been found in the interpretation of ambiguous material. Children's level of self-report trait anxiety was found to be related to their interpretation of ambiguous stimuli (Hadwin, Frost, French, & Richards, 1997). Forty children aged 7 to 9 were presented with pairs of black and white pictures corresponding to 14 homophones (words which sound the same, but had different meanings such as pane versus pain). The homophones could be interpreted as neutral or threatening. Children had to point to the picture of the word they had just heard. Regression analysis indicated that the children's interpretations of the homophones were significantly predicted by their level of anxiety, with High-Anxious children being more likely to select the threatening interpretation.

Further empirical data supporting this interpretative bias in anxious children was found by Taghavi, Moradi, Neshat-Doost, Yule and Dalgleish (2000), who compared children and adolescents diagnosed with anxiety disorders with non-clinical control children. The children were presented with homographs (words that are written the same but have two meanings, in this case, both a neutral and a threatening interpretation). The participants were asked to construct a sentence using each

homograph. Anxious children produced significantly more sentences with the threatening interpretation than the control group.

Barrett, Rapee, Dadds and Ryan (1996) demonstrated that the cognitive bias for interpreting threat was present in children. They compared three groups of children, aged 7 to 14, an anxious group of 152 children who fulfilled diagnostic criteria for an anxiety disorder, 26 children who had no psychiatric diagnosis and 27 children who met criteria for oppositional defiant disorder. Children and their parents were separately interviewed regarding their interpretations and response plans to 12 ambiguous situations. Both the anxious and oppositional groups were more likely to interpret the ambiguous situations as threatening. Therefore, threat perception bias does not appear to be specific to children with anxiety disorders. However, children in the anxious group were more likely to choose avoidant solutions and children in the oppositional group were more likely to choose aggressive solutions.

As a bias towards threat appears to be present in anxious children, it would be useful for future research to establish its developmental course. This would enable investigation of whether cognitive bias mediates the development of anxiety or whether it is a subsequently acquired consequence of anxiety.

Goal selection, response access and enactment.

Few studies have distinguished between goal selection, response access and enactment. There are methodological difficulties in distinguishing between these three stages, resulting in the chosen strategy being enacted. Studies have measured either observed outcome, or children's self-report of the actions they would take. The literature reported up to this point has suggested that strategies such as avoidance are

likely to contribute to the maintenance of childhood anxiety, whereas strategies such as approach and problem solving are likely to reduce anxiety.

Anxious children do appear to be more likely to use, or state they would use, avoidant coping strategies. A positive correlation between children's trait anxiety levels and participants' reliance on escape-avoidance strategies for coping with anxiety, and a negative correlation between trait anxiety and problem-focused strategies has been found (Olah, Torestad, & Magnusson, 1989). Barrett et al. (1996) found that anxious children were more likely to choose avoidant coping strategies than non-anxious children.

Vasey, Daleiden and Williams (1992) evaluated whether anxiety disordered children differ from normal controls in their knowledge and use of strategies for coping with worrisome thoughts. They examined whether anxious children were deficient in their knowledge of coping strategies or if they select and use different strategies than controls. There were 12 children in each group. They were asked to generate coping strategies for four vignettes, in which a child was experiencing unwanted worrisome thoughts about a future potential threat, such as failing an exam. They were asked how the child would help themselves stop worrying and then how they would help themselves stop worrying, if they were worrying like the child in the story. The first question was to ascertain the knowledge the child had of strategies to manage worry, and the second question was to assess the strategies the children actually use. They found no difference between the anxious children and matched controls on the strategies they generated for the hypothetical children, suggesting that the anxious children did not have a knowledge deficit. However, when asked what strategies they would actually use, anxious children reported using a smaller percentage of problem-focused/approach strategies, and a greater percentage of distraction/avoidance

strategies. Therefore, the difference in use of strategies for dealing with worrisome thoughts does not appear to reflect a deficit in anxious children's knowledge of strategies. However, this unpublished study looked at the control of worrisome thoughts, rather than other aspects of anxiety, and they also looked at situations which were clear threats, rather than ambiguous.

Summary

There is evidence to demonstrate that anxious children selectively attend to threat and interpret ambiguous information as threatening, and that anxious children choose strategies that immediately reduce anxiety, but which interfere with problem-focused coping strategies that may reduce anxiety in the long term. However, initial reports suggest that they do not lack the knowledge or ability to generate effective strategies. However, the studies have all tested children under hypothetical conditions, and children may not be able to access the strategies when they are experiencing anxiety.

Cognitive Content

In addition to the attention and interpretation biases towards threat, anxious and non-anxious children may differ in the content of their cognitions. However, when assessing children's cognitions, their developmental level needs to be taken into account and children must be able to recognise that thoughts exist. Lodge and Tripp (1995) found that by 8 years old the majority of children could report their self-talk, and although some younger children were able to do this, the majority could not.

Cognitive self-talk.

Beck's (1986) cognitive theory of adult anxiety proposes that anxious individuals will endorse or report significantly more negative cognitions than non-anxious individuals, as they will have lower expectancies of their ability to cope with the threat. Zatz and Chassin (1985) studied High- and Low-Anxious children and found that High-Anxious children reported significantly more negative evaluations than Low-Anxious children during a maths test. During a real life anxiety provoking event (a dentist visit), Prins (1985) asked children to provide a retrospective verbal record of their self-talk, in order to examine the strategies the child uses to control distress. High- and Low-Anxious children aged 8 to 10 years were compared. High dental fear was related to negative self-talk, whereas low dental fear was not related to any type of self-talk. In addition, Prins, Groot and Hanewald, (1994) found that High-Anxious children reported significantly more negative self-evaluations, in a naturalistic anxiety provoking situation (taking a test). High-Anxious children also reported more coping thoughts than Low-Anxious children.

Many of the studies have reported data from a normal population of children, who do not reach diagnostic criteria for anxiety disorders. Kendall and Chansky (1991) compared a group of children meeting diagnostic criteria for anxiety disorders, who had been referred to a clinic for children and adolescents with anxiety disorders, with children referred to the same clinic who did not meet diagnostic criteria. Scores on a self-report measure that assesses the frequency of thoughts relating to generalised anxious concerns and asks children to endorse the frequency of a particular thought over the past week did not differ between children in the two groups. However, the control group had been referred for anxiety, so they are likely to have displayed some

anxiety symptoms. In addition, the two groups did not differ on self-report measures of anxiety and there were only a small number of children in the non-diagnosed group.

Kendall and Chansky (1991) also used thought listing following a stressful task. Children were asked to give a brief improvised videotaped speech about themselves. Children were asked to list their thoughts prior to, during and after the task and their coping strategies. Anxiety disordered children did not differ significantly from non-diagnosed children on the frequency of cognition type (positive, negative, coping or neutral). This non-significant result may be because it is difficult to find a task that all children will find anxiety provoking.

Cognitive Content-Specificity Hypothesis.

Beck and his colleagues (e.g., Beck, Brown, Steer, Eidelson, & Riskind, 1987) proposed that each disorder has specific cognitions associated with it. Anxiety focuses on cognitions about threat and danger, and depression is associated with cognitions concerning perceived loss. Kendall's (1985) model of childhood anxiety also suggests the importance of threat. Partial support for this theory has been found in children. Ambrose and Rholes (1993) studied the cognitions of a non-clinical sample of children and adolescents by using a self report measure of loss and threat cognitions. Consistent with the content-specificity hypothesis, they found that the threat cognitions were significantly related to anxiety, and threat cognitions were less strongly associated with depression. However, the relationship between symptoms and cognitions varied with the level of cognitions. High levels of threat cognitions were more closely related to depression and less closely related to anxiety. In addition, increased levels of loss cognitions were related to increased levels of depressive symptoms. This relationship

was particularly strong at high levels of loss cognition. Loss cognitions were also weakly related to anxiety symptoms.

In addition, Laurent and Stark (1993) provided partial support for the hypothesis. They studied children who met diagnostic criteria for anxiety or depression. They found that depressed children endorsed more items on a measure of depressive cognitions than anxious children. However, no differences were found between depressed, anxious and mixed depressed-anxious group on measures of anxious cognitions. This is consistent with the results of Ambrose and Rholes (1993) who found no relationship between anxiety and threat cognitions at high levels of anxiety.

Treadwell and Kendall (1996) compared negative self-statements of 8- to 13-year-old children with anxiety disorders and non-clinical controls. Negative self-statements were related to level of anxiety and responses to cognitive behavioural therapy. But both anxious and depressive self-talk was high in anxious children.

Summary.

The literature on the cognitive content in childhood anxiety suggests that anxious children tend to produce more negative-self statements than non-anxious children. These negative cognitions may represent children's lower perceive efficacy. At low levels of anxiety, children appear to have more cognitions about threat, although the relationship is not as clear at high levels of anxiety. The literature reported here does not examine causal relationships between negative and threat cognitions, and anxiety. It merely establishes that they co-exist. The literature also does not indicate whether cognitive processes may be different for each of the anxiety disorders. It is

unclear how accurate self-report measures of cognitions are, as some aspects of cognition may not be available to self-report as they may be automatic or unconscious.

Family factors

The family appears to play an important role in childhood anxiety. This may be at one or several different levels. Genetic transmission, early attachment relationships, the learning environment where others reward avoidance, restrictive child rearing may all have a role. These potential family influences will be explored in turn here.

There is considerable literature that indicates that there is a strong family link in anxiety. For example, first degree adult relatives of adults diagnosed with anxiety disorders have been found to have a higher rate of anxiety disorders (e.g., Beidel & Turner, 1997; Crowe, Noyes, Pauls, & Slyman, 1983; Harris, Noyes, Crowe, & Chaudhry, 1983). In addition, children of patients with anxiety disorders also appear to be at higher risk of childhood and adulthood anxiety disorders, than children in the population as a whole. Turner, Beidel and Costello (1987) found that children of anxiety patients were more anxious and fearful and reported more school difficulties, more somatic complaints and were twice as likely to have an anxiety disorder compared with children of patients diagnosed with dysthymic disorder and seven times more likely than children of parents with no psychiatric diagnosis. However, these results were not significant, most likely due to the small sample size. In addition, retrospective accounts suggested that a high proportion of mothers of children with overanxious disorder reported a history of overanxious disorder themselves (Last, Phillips, & Statfeld, 1987), and parents of children diagnosed with anxiety disorders show an increased incidence of anxiety disorders (Last et al., 1991).

Furthermore, having co-morbidity of anxiety and depression seems to increase the risk. Biederman, Rosenbaum, Bolduc, Faraone and Hirshfeld (1991) found that the morbidity rate of anxiety disorder in children of parents with panic disorder increased further if the parents had a co-morbid diagnosis of panic disorder and major depressive disorder. Therefore, it appears that there may be a family link for psychopathology, rather than for a specific disorder.

Genetic component

One reason for the increased risk of anxiety disorders in relatives with anxiety disorders described above may be genetic. Twin and adoption studies enable the influence of genetic and environmental factors to be distinguished, however these types of studies are rare.

In a study conducting diagnostic interviews of twins of adults diagnoses with anxiety disorders, Torgensen (1983) found that the concordance rates for the presence of anxiety disorders is higher for monozygotic (identical) twins than dyzygotic (non-identical) twins. However, no monozygotic twin had the same anxiety disorder as their twin, so it appears that there may be a general genetic vulnerability for developing an anxiety disorder, rather than for the specific diagnostic category. This study suggests that there may be a genetic component to the transmission of anxiety, however further studies are needed to corroborate this.

One mechanism by which the genetic vulnerability to developing anxiety disorders may be transmitted is by inheriting a particular type of temperament. Temperament is thought to be a set of inherited personality traits, which appear early in life and are relatively stable throughout development. There have been several different ways of classifying temperament. One of the most frequently used ways of classifying

temperament is behavioural inhibition (BI). BI is thought to be a hereditary trait which describes reactions to encounters with the unfamiliar, and can be observed as withdrawing, inhibition and seeking comfort from their caregiver (Kagan, 1989). It is hypothesised to be a stable trait that can be observed in infants. Kagan followed infants who had been classified as behaviourally inhibited (BI) or behaviourally uninhibited (BUI) from 21 months to when they were 4, 5, and 7.5 years old. They found that the majority of children maintained these behaviour traits.

BI is thought to be a risk factor for the development of anxiety disorders. Using criteria comparable, but not identical to Kagan's BI, Caspi, Henry, McGee, Moffitt and Silva (1995) found that boys displaying approach behaviour at ages 3 to 5 were less likely to develop anxiety disorders later in childhood. Girls who tended to withdraw from novelty at ages 3 to 5 were more likely to develop anxiety disorders later in childhood. However, these results were not found for BI boys or non-BI girls. In addition, Biederman et al. (1993) found significant differences between BI and non-BI children in rates of anxiety disorders at follow-up. However, only approximately one third of BI children developed anxiety disorders and so it appears that BI is only one part of the explanation. A link between BI in children and anxiety in adulthood has been found. Gest (1997) found that BI at ages 8 to 12 predicted social and emotional problems in adulthood.

In summary, there is initial indication that genetic factors play a role in the development of anxiety disorders, although further research is needed. It has been proposed that temperamental variables are inherited. The mechanism by which BI predicts anxiety disorders is unclear, and there is not sufficient evidence to equate BI with the genetically transmitted vulnerability. Alternatively, BI may be the early sign of

anxiety, rather than a separate construct and these studies may be indicating that early anxiety predicts later anxiety.

Attachment

One environmental influence that may contribute to the development or protection from the development of anxiety disorders is the quality of the early attachment relationship. Bowlby (1969) proposed that the quality of the early relationship between the infant and their primary caregiver influences the development of psychopathology in children and adults. The attachment relationship is based on whether there is a sense of security and confidence in the child's transactions with the environment, particularly in novel, threatening or difficult situations. If a child is securely attached they will be able to explore their environment, confident that their caregiver is there if needed. Insecure attached children may be more hesitant or fearful because they are less confident that the adult is available (Cassidy & Berlin, 1994).

Ainsworth, Blehar, Waters and Wall (1978) used the Strange Situation to measure attachment relationships. Children were observed on reunion with their mother, following a period of separation. Children were grouped according to three categories: insecure/avoidant attachment (children who ignored their mother on reunion and rarely cried on separation); secure attachment (children who were distressed on separation, sought contact on reunion, and used their mothers as a secure base from which to explore their environment); and insecure/ambivalent or resistant attachment (infants who exhibited anxiety in the presence of their mother, who cried on separation, but were ambivalent when they were reunited with their mothers).

Bowlby (1973) argued that insecure attachments resulting from prolonged separations from the caregiver, or threats to leave the child, are a risk factor for the

development of anxiety disorders. This may lead to the child becoming either self-reliant (avoidant) or highly demanding and seeking attention. Whereas, a secure attachment may have a protective function in that it enables the child to be reassured in threatening situations, and enable potentially fearful events to be approached (Thompson, 2001). Cassidy and Berlin (1994) argue that insecure attachments make infants more wary and having heightened anxiety because the child is uncertain whether the attachment figure is available. It may be that the child is over attentive to threat cues because they are unsure that their caregiver will provide security. However, empirical evidence for these claims is limited and very little research has examined the connection between insecure attachment and anxious psychopathology.

Longitudinal studies have indicated that attachment styles persist beyond infancy and can predict later behaviour. Some research has suggested that ambivalent attachment style is related to anxiety and depression in adolescents. Warren, Husten, Egeland and Sroufe (1997) studied a group of adolescents whose attachment had been measured in infancy. They found that 28% of the adolescents whose attachment had been classified as insecure-ambivalent, had current or past problems with anxiety, compared with 13% of the rest of the sample. This was more important in predicting anxiety than maternal anxiety or infant temperament. Clinic-referred child and adults show relatively low rates of secure attachment (Main, 1996). van Ijzendoorn and Bakermans-Kranenburg (1996) conducted a meta-analysis and found that there was often not a specific relationship between particular forms of psychopathology and insecure attachment. It has been suggested (Nachmias, Gunnar, Mangelsdorf, Parritz, & Buss, 1996) that attachment has a mediating role between temperament and anxiety, and the quality of the attachment relationship can increase or decrease anxiety. This

was judged using a physiological measure of anxiety. The authors found that children with high BI and insecure attachment were less able to reduce their own anxiety levels.

Dadds & Barrett (1996) note that attachment literature tends to consist of global categories and there are no descriptions of behavioural processes mediating attachment and psychopathology. More research needs to include fathers particularly as Cowan, Cohn, Pape-Cowan, & Pearson (1996) found that mother's and father's attachment styles were differentially related to internalising versus externalising problems.

In summary, although insecure attachment relationships appear to have some foundations for later development of psychopathology, this may be in conjunction with other factors such as temperament. Insecure attachment does not specifically predict anxiety, it also predicts other internalising and externalising disorders (van Ijzendoorn & Bakermans-Kranenburg, 1996). Therefore, attachment relationships should be viewed in the context of other developmental influences.

Learning environments

One of the ways in which parents' own anxiety may influence that of their children is by modelling. As noted earlier Rachman (1977) proposed two additional pathways to the acquisition of fear and anxiety. These were the vicarious acquisition of fears through observational learning (modelling), and the transmission of information. Modelling is hypothesised to be a process whereby children may learn to associate a situation with fear by observing their parents', peers' or siblings' responses. Observing the fearful behaviour of others may result in the child imitating these responses on future occasions when they encounter the stimulus. However, the precise method by which this learning takes place is not known.

The high correlation between the types of fears held by children and those held by their mothers (Windheuser, 1977) would support the transmission of fear by modelling. Children may observe their parents modelling threatening interpretations and using avoidant coping strategies, and learn to cope with anxiety by avoiding fearful stimuli. Some empirical evidence has supported the role of modelling in the acquisition of children's fears. A linear association was found between children's scores on a self-report measure of fear and mothers ratings of how often they expressed their own fears to their children (Muris, Steerneman, Merckelbach, & Meesters, 1996). In addition, Ollendick & King (1991) found that the majority of children attributed their fears to modelling and transmission of information. Another pathway may be through transmission of information by verbal instruction. Although as Rachman (1977) notes, there is no direct evidence for the fear acquisition through the transmission of information.

Parents may have an additional role in maintaining their child's anxiety. If parents share the same fears as their children, and display avoidance behaviours, then this behaviour is likely to limit their children's experiences with feared situations (King, Gullone, & Ollendick, 1998; Menzies & Clarke, 1995), and the child will have reduced opportunities for habituation to occur. Thus the child may not develop adaptive responses to aversive stimuli. There is limited evidence for this theory.

Operant conditioning may also shape anxious and non-anxious parents' responses to their anxious children. Fear and avoidance, may be rewarded by others, meaning that these responses become more likely (Ollendick, Vasey, & King, 2001). Attention and comfort from teacher, peers and parents may reinforce the child, and the anxious child may be allowed to escape or avoid unpleasant situations reinforcing avoidance. For example, parents or teachers may reinforce expression of fear or

avoidance by allowing a child to stay home from school with their mother (Wells & Vitulano, 1984).

If parents of anxious children do not have knowledge of the strategies that children would find helpful in managing their anxiety, they are unlikely to be able to teach approach and problem-solving strategies to their children. To examine this theory, primary caregivers of 13 children who met diagnostic criteria for one or more anxiety disorder were compared with parents of non-anxious children, in the type of strategy they advocate for children's regulation of worrisome thoughts (Vasey, Hilliker, Williams, & Daleiden, 1993). Parents were asked to generate strategies for fictional children to manage worry in four vignettes and were asked how the child's parent could help. They were then asked to list the type of strategies their own child would use and the strategies they would use to help their child. They found that parents of anxious children suggested that both their own child and the hypothetical child would use more avoidant/distraction strategies. This may be due to parents of anxiety disordered children not having adequate knowledge of the strategies that a child might find useful in managing worry. A parent may not expect children to be able to actively approach anticipated threats on their own and therefore do not help their children develop age-appropriate coping skills. Alternatively, the parents may have assumed the fictional child was like their own and drew on the knowledge of how their own child would cope when generating strategies for the fictional child. However, this explanation is unlikely because there were no instances of parents reporting avoidant/distraction strategies to help children cope with worrisome thoughts.

In summary, the family of an anxious child may create a learning environment which models interpretation of ambiguous situations as threatening, and models avoidant responses. In addition, avoidance may be rewarded. One reason for this is

that parents may not have the knowledge about the kind of strategies that reduce anxiety in the long term, or may feel that the immediate reduction in the child's anxiety is paramount. However, there is very little empirical investigating these hypotheses.

Dimensions of child-rearing: Restriction and control

Krohne and Hock (1991) have proposed a "two-process model" of the relationship between styles of parent child rearing and coping dispositions in the child. The two-process model attempts to explain the development of trait anxiety and coping dispositions. They observed 47 mothers and their children during a problem-solving task, and classified their behaviour according to several dimensions of child rearing. The two processes they proposed were significant were firstly support (helping the child to acquire problem-solving or coping competencies) and restriction (attempts to control the child), and secondly positive and negative feedback (the way in which the parent responds to the child's behaviour as desirable or undesirable). They proposed that these dimensions of child rearing influence the child's competence to behave in new situations, their expectancies of their competence, and expectancies of the consequences of their actions. A highly restrictive parent, who interrupts the child's independent problem-solving, will lead to the child being increasingly dependent on its parents and being less able to create new solutions to a problem. In addition, if children receive, and learn to expect, frequent negative feedback, they may develop a low expectancy to cope with problem situations and a low expectancy that they can master those situations. They may then become avoidant and show high levels of anxiety.

They found that mothers of High-Anxious girls were more likely to be restrictive as they intervened in the child's problem solving after they had been working alone, and were less likely to allow the child to work alone. The opposite was found

for boys with high anxiety. They explain this discrepancy by proposing boys find their mother's active intervention as supportive and stress-reducing whereas girls experience it as competitive and restrictive, increasing their anxiety.

Further observational and questionnaire studies have confirmed that parental control and negative feedback are connected with high anxiety in children. Dumas, LaFrieniere and Serketich (1995) observed parent interactions between aggressive, anxious and socially competent children, aged 2.5 to 6.5 years, and their mothers. Mothers of anxious children attempted to control their children with more aversive control exchanges than positive control exchanges. In addition, clinically anxious children were more likely to rate their parents as less accepting than control children were (Siqueland, Kendall, & Steinberg, 1996). Messer and Beidel (1994) found that anxiety disordered children described their family environments as promoting less independence. In retrospective studies, anxious adults have recalled significantly lower levels of care and more protection from their parents than controls (Wiborg & Dahl, 1997).

However, these studies have not accounted for the level of anxiety in parents, and the effect this might have on their interactions with their child. Whaley, Pinto and Sigman (1999) found that mothers with anxiety disorders were more likely to catastrophise and criticise than control mothers, they were significantly less granting of autonomy and display significantly less warmth and positivity than control mothers. These behaviours predicted the development of child anxiety more strongly than maternal diagnosis. In addition, child anxiety predicted increased maternal control. This again suggests that both the parent's anxiety and the child's anxiety influences the maintenance of child anxiety.

In a review of the literature, Rapee (1997) reported that rejection and control appears to be related to both anxiety and depression, although there is limited evidence that control has a specific association with anxiety and rejection has a specific association with depression. This may be related to the mothers' anxiety. More data from fathers is also needed. Excessive protection and control, appear to influence children's problem-solving strategies, this may be by communicating to the child that the world is dangerous, and by reducing opportunities for contrary learning experiences. However, these studies have not examined how parental protection or restriction will influence how children respond to ambiguous material, which may be potentially threatening.

Reciprocal Influence.

Barrett et al., (1996) examined the relationship between cognitive biases in anxious children and family styles that emphasise threat perception and avoidance. As described earlier, the anxious children were more likely to perceive ambiguous situations as threatening, and more likely to propose avoidant coping strategies. In addition, both mothers and fathers of anxious children were more likely to perceive the situations as threatening and propose avoidant solutions. The family was asked to discuss two of the ambiguous situations and the child had to provide a final response. After the family discussion, anxious children more likely to select avoidant solutions than before this discussion. They proposed that the family process enhances the development of anxious behaviours, particularly avoidant responses.

To further examine what the processes were which enhanced children's selection of avoidant responses during the family discussion, Dadds, Barrett, Rapee and Ryan (1996) examined tape recordings of the family interactions. They found that

parents of anxious children were more likely to reciprocate avoidance, and parents of non-clinic children were more likely to reciprocate prosocial plans. They found that parents of anxious children agreed less with their child and listened less to their child than parents in the non-clinic group, suggesting that they are less likely to reward independent thinking. No differences were found in the frequency that any family member communicated threat interpretation. These behaviours were associated with the child's response to the ambiguous situation.

Chorpita, Albano and Barlow (1996) hypothesised that children would demonstrate an increased bias for threat on a task when they had been previously primed by anxious ideas in discussion with their parents. Four children aged 9 to 13 diagnosed with an anxiety disorder formed the clinical sample and eight children aged 9 to 13 formed the non-clinical sample. Children were presented with four ambiguous situations and asked to express a list of interpretations of the possible details surrounding the context of the situation and to generate a list of plans for how to behave or react to the situation. The children were then asked to discuss the same situations with their parents. They found that both Low- and High-Anxious children showed high threat interpretation, however, only High-Anxious children were likely to express avoidant plans to ambiguous situations. The higher the ratio of anxious to non-anxious statements produced by the parents in the discussion task, the more likely children were to change their responses from non-anxious to anxious interpretations and avoidant behavioural plans. This is consistent with Barrett et al.'s (1996) findings. However, the generalisation of these results is limited because of the low statistical power due to the small sample size.

Cobham, Dadds and Spence (1999) criticise studies using hypothetical situations, which mean that the measures obtained consisted solely of self-report

hypothetical intentions. A real life laboratory task would overcome this methodological weakness. In order to continue to explore the relationship between parent-child interactions and parental anxiety on the development and maintenance of child anxiety, Cobham et al. compared 3 groups of children aged 7 to 14 (anxious, clinical control and non-clinical control). The children in the anxious group were split into two subgroups, those whose parents were also anxious (parent + child anxious group) and those parents were not anxious (child only anxious group). Children had to give a brief talk about themselves in front of a video camera and decide whether or not to do a second task in which they were asked to give a videotaped speech about what they found most frightening. Family members were asked about their expectations of the child's level of anxiety and skill level and whether they thought the child would choose to do the second optional part of the task. Each family then engaged in a structured family discussion to find out how the child felt about doing the first talk, to help the child prepare for the first talk and to discuss whether he or she would do the second task.

There was no difference between the two groups in children's expectations on skills and anxiety level, and anxious children were no more likely than control children to report that they would not do the second optional task. This was in contrast to the predictions of Krohne and Hock (1991) model that anxious children would display lower competence expectancies. In addition, mothers across the three groups did not differ in their ratings of their child's anxiety or skill levels. They were also no more likely to predict their child chose the avoidant solution for the optional task. There was also no difference between mothers self report scores on anxiety across groups. There was no differences in children's expectations between the child anxiety group and the child + parent anxiety group. The family discussion produced no changes in anxious children's expectations of their future performance, in contrast to the study of Barrett et

al. (1996). However, the task used was not necessarily anxiety provoking for the children, and mothers or the children did not predict they would find the task anxiety provoking.

There was one significant finding, compared to mothers in the child only anxiety group, mothers in the parent + child anxiety group expected that their children would be more anxious and more likely to choose an avoidant solution. Anxious parents appeared to expect less of their children than non-anxious parents. It may be that anxious children with anxious parents have their anxiety maintained by negative expectations held by their parents.

To summarise, there is likely to be a reciprocal relationship between child characteristics and parental behaviour. Interaction between parents and children, by a variety of processes, appears to lead to an increased likelihood of children choosing avoidant responses. However, the one study that used real life tasks, rather than hypothetical situations did not replicate the findings, and only found that parents' expectations of their children distinguished between anxious and non-anxious children. Further research needs to distinguish between the factors proposed to influence the enhancement of avoidant responses, by using standardised parental interventions rather than naturalistic interactions. Longitudinal data would also help to establish if any of these characteristics of child and parent interactions are stable, and whether they predict anxiety in the long term.

Clinical implications

The theories of childhood anxiety described here have implications for treatment. Firstly, exposure of the child to fearful stimuli and reducing avoidance should reduce specific fear. This has been successfully used to treat childhood anxiety

(Dadds, Heard, & Rappee, 1991; King, et al., 1994). Modelling approach behaviour has been found to reduce avoidant behaviours and phobias to a variety of stimuli (e.g., water and dogs; King, et al. 1994). However, participation and exposure to the stimuli enhance the effect of modelling. One study found that modelling was not significantly better than assessment only condition, but reinforced practice did lead to statistically and clinically significant gains with 3- to 8-year-old child with a fear of water (Menzies & Clarke, 1993).

Cognitive work is also indicated and children could be taught to process information about threat in a more constructive way, in order to compensate for threat bias. Children could be taught to compensate by making sure they have all the relevant information and to replace biased cognitions with adaptive alternatives (Daleiden & Vasey, 1997). Kendall's (1994) cognitive-behavioural therapy package includes teaching children to recognise their anxious cognitions and replace them with adaptive self-talk.

It appears that it is important to supplement this work, by including the family, because parents of anxious children are likely to have high anxiety themselves, and maintain their child's anxiety by encouraging them to avoid situations. In their treatment study Barrett, Dadds, and Rapee (1996) taught parents how to reward approach behaviour and extinguish anxiety. They found that at the end of their treatment programme, the tendency for parents of anxious children to reinforce avoidance was greatly diminished. Children with anxious parents show poorer outcome in treatment studies when there is no parental focus in the treatment (Cobham, Dadds, & Spence, 1998). However, there are no treatment studies that directly address parental control and restriction.

To summarise, these treatment studies support the importance of the factors proposed to influence the acquisition and maintenance of anxiety in children. Manipulation of these factors appears to reduce anxiety. The exception is modelling, which does not appear to be sufficient to reduce anxiety. Studies that have a multi-modal approach to treatment appear to be the most successful, however the relative importance of the individual components of the treatment package has not been assessed.

Conclusions and future research directions

Children's interpretation biases and use of avoidant coping strategies are likely to be determined by multiple factors, none of which are necessary and sufficient to produce and maintain these behaviours. The factors that appear to be important are avoidance of feared stimuli, reinforced by immediate reduction in subjective feelings of anxiety and also by positive consequences from others. At a cognitive level, children appear to have both an attentional bias and an interpretation bias towards threat, and tend to produce more negative self-statements. Initial reports have suggested that anxious children do not have a knowledge deficit for the type of strategies that are helpful in reducing anxiety, although parents may show this deficit. However, these are unpublished studies and they examined children's choice of response to clear threats, rather than ambiguous situations. There appears to be an additional influence from the family, by both genetic and environmental factors. The process by which family factors interact with these other factors is not clear.

Future research needs to examine how children are influenced by their parents to avoid situations, particularly ambiguous situations. Parental control and restriction,

as well as pointing out threat bias and reciprocating avoidance appear to be important. Many studies have relied on observations of interactions of parents and children as they occur, and it is not possible to separate out and empirically control the various factors. Further studies are needed, which standardise and separate components such as pointing out threat, reciprocating avoidance, restriction and negative feedback.

The role of parents and children's knowledge could also be examined further, in order to determine whether the knowledge deficit for strategies to reduce worry, thought to be present in parents of anxious children, but not anxious children themselves, is found for responses to ambiguous situations.

In addition, other avenues for research will be to examine how the child's development level affects the relative importance of these factors. It might be hypothesised that as a child enters adolescence, family factors become less important and the influence of peers will be greater. In addition, it has been proposed that a high level of anxiety in non-clinical children is on a continuum with anxiety that is clinically significant. This relationship needs to be examined further.

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Empirical Paper

Factors influencing children's response to ambiguous situations

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Factors influencing children's response to ambiguous situations

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Factors influencing children's response to ambiguous situations

Abstract

Two possible mechanisms for anxious children's tendency to propose avoidant solutions to ambiguous situations were explored. Firstly, the possibility that they lack knowledge of prosocial solutions, and secondly that the interactions with their parents enhances this tendency. Children were screened on a self-report measure of anxiety and 30 children with high scores were compared with 30 children with low scores, on their reports of the strategies they would use in ambiguous situations. It was expected that High-Anxious children would be more likely to suggest other children would use approach coping, compared with the strategies they reported for themselves. However, independent t-tests, comparing the number of threat interpretations and number of prosocial and avoidant solutions produced by the Low- and High-Anxious groups, revealed no significant differences. There was no significant main effect for how children predicted they would respond compared with another child, on the number of threat interpretations and number of prosocial, avoidant, catastrophic and seeking social support responses given.

Children were also asked to report the strategies they would use after they imagined that their parent modelled a threatening or non-threatening interpretation of the ambiguous situation (parental influence). There was a significant main effect for parental influence for prosocial, avoidant, catastrophic and seeking social support responses. Simple contrasts revealed that following imagining parents' modelled threat, prosocial and seeking social support responses significantly reduced, and avoidant and catastrophic responses significantly increased. After imagining parents modelled non-threatening interpretations, children produced more prosocial responses and fewer seeking support and catastrophic solutions. There was no

significant change in the number of avoidant solutions. Therefore, both the influence of parents and the child's initial choice of response appear to affect how children respond to ambiguous situations.

Factors influencing children's response to ambiguous situations

Much of the information in the environment is ambiguous, and cognitive processes need to take place in order to interpret it. Cognitive theories of anxiety in adulthood and childhood suggest that the interpretation of ambiguous stimuli, which could be threatening or non-threatening, is particularly important (Beck, Emery, & Greenberg, 1985; Kendall, 1985). Perceiving an ambiguous stimulus as threatening may lead the individual to take quick action to avoid harm. This results in three response systems become active: overt behavioural avoidance; subjective feelings and thoughts; and physiological activity (Wells & Vitulano, 1984). However, if the perceived threat actually poses no danger, the emotional state is inappropriate and is a maladaptive response to the environment.

Anxious children and adults appear to have a bias towards interpreting ambiguous material as threatening. Adults with high levels of anxiety have a tendency to choose the threatening interpretation, when stimuli have both a threatening and neutral interpretation (e.g., Eysenck, Mogg, May, Richards, & Mathews, 1991). This finding has been replicated with children (Hadwin, Frost, French, & Richards, 1997). Perception of threat is proposed to lead to the activation of an anxiety response (Kendall, 1985).

Once a stimuli has been interpreted as threatening, information processing models of anxiety suggest that children then select a goal, choose or construct a response and enact it (Daleiden &Vasey, 1997). Clinically anxious children appear to choose strategies that offer immediate relief from anxiety, such as escape and avoidance, but which interfere with strategies that offer more hope of reducing anxiety over the long term (Vasey & Daleiden, 1994). Daleiden and Vasey (1997) question why anxious children choose these strategies. Possible explanations could

be that they do not know of other strategies, or that they think that these strategies are the most effective. Alternatively, it could be that these children have difficulty accessing the appropriate strategy when in a state of high anxiety, because they have learned that avoiding or escaping from the stimulus results in short term reduction of the subjective experience of anxiety.

Avoidance is proposed to maintain anxiety because it prevents children having contact with the feared stimulus. And therefore, habituation of anxiety does not occur, because the individual does not have the necessary repeated exposure to the feared stimulus and does not have the opportunity to learn that the stimulus is not threatening (Mowrer, 1939).

In order to assess whether children had the knowledge of which strategies are the most effective, Vasey, Daleiden and Williams (1992) asked children with clinical levels of worry how other children manage their worries. High worriers did not differ from matched controls in the type of strategies they suggested other children would use. Yet, these children reported a greater reliance than controls on strategies such as distraction and cognitive avoidance to cope with their own worrisome thoughts. This suggests that anxious children do not have a knowledge deficit for problem-focused strategies to deal with worrisome thoughts. However, this is an unpublished study. Nevertheless, it is the only study exploring whether children have a knowledge deficit for these types of strategies. The present study will provide a means to determine whether children with high levels of anxiety (High-Anxious) have a knowledge deficit for these strategies.

Another factor that appears to influence children's choice of strategy for managing potentially anxiety-provoking situations is the influence of their parents. Parents have been shown to have an influence on children's response to anxiety provoking situations. Parents of children who worry excessively appear to differ

from parents of normal controls in the type of strategies they think that children should use to help themselves stop worrying (Vasey, Hilliker, Williams, & Daleiden, 1993) i.e., they propose the use of avoidant and distraction strategies. Although, this is another unpublished study.

A reciprocal relationship between child characteristics and parents behaviour has been suggested (Barrett, Rapee, Dadds, & Ryan, 1996). The interaction between parents and children appears to lead to an increased likelihood of children choosing avoidant responses. Family discussions have been shown to enhance 7- to 14-year-old clinically anxious children's choice of avoidant strategies, in situations that could be interpreted as threatening or non-threatening (Barrett, et al., 1996). Children were given twelve ambiguous situations and asked the children what they thought was happening and what they thought they would do in each of the situations. Children were then asked to discuss two of the ambiguous situations with their parents and decide what they would do in each situation. Before the family discussion, clinically anxious children were more likely than non-clinic children to interpret the ambiguous situations as threatening, and to suggest they would use avoidant coping strategies. In addition, following the family discussions, the tendency of clinically anxious children to report they would use avoidant strategies was enhanced.

Dadds, Barrett, Rapee and Ryan (1996) studied these family discussions. They found that parents of clinically anxious children were more likely to reciprocate avoidant talk. They failed to find a difference between the parents of anxious and non-anxious children on how often they pointed out threat interpretations. This is in contrast to what would be expected, because parents of clinically anxious children have a high likelihood of having an anxiety disorder themselves (e.g., Beidel & Turner, 1997; Turner, Beidel, & Costello, 1987), and high

anxious adults are likely to show an interpretation bias towards threat (Eysenck et al., 1991). Thus, if parents of anxious children are anxious themselves, they are also likely to display the interpretation bias, and be more likely to interpret ambiguous situations as threatening. In addition, prior to family discussions, parents of anxious children were more likely than parents of non-clinic children to provide a threat interpretation to the twelve stories (Barrett et al., 1996).

One explanation for the non-significant result may be that the sampling method yielded low base rates, as only approximately 4% of each person's utterances were classified as descriptions of threat. This may have been too low to reveal any differences. In addition, when parents reciprocate avoidance, threat is implied, but these utterances would not have been counted as a description of threat. Alternatively, Dadds et al. (1996) account for this result by suggesting that the family enhancement of avoidant responses is not simply due to parents modelling more threatening interpretations. In order to examine whether modelling of threat interpretations by parents of anxious children mediates children's increase in selecting avoidant solutions, parents' modelling threatening or non-threatening interpretations needs to be experimentally manipulated.

This study was designed to replicate the results of Barrett et al. (1996) using a non-clinical sample. It was predicted that High-Anxious children would show a cognitive bias towards threatening interpretations for ambiguous situations, and would be more likely to suggest avoidant solutions.

This study aimed to examine two additional factors. Children's knowledge about strategies for dealing with ambiguous situations would be explored, by asking them what solutions they would predict other children would choose. It was expected that High-Anxious children would choose a significantly greater number of avoidant strategies for themselves compared with their choice of strategy for other

children, whereas there would be no difference in the Low-Anxious children's choice of solution. This would indicate that High-Anxious children do not have a knowledge deficit for the types of strategies that are useful for reducing anxiety in the long term (consistent with Vasey et al. (1992)).

The current study also attempted to manipulate the parental variables which might strengthen the children's selection of avoidant plans, in particular, modelling a threatening interpretation. Children were asked to imagine that their parents modelled a threat interpretation, in order to examine whether this is sufficient to increase children's selection of avoidant responses. It would be expected that parents modelling threat interpretations would increase the likelihood of High-Anxious children adopting an avoidant strategy. Whether or not parents modelling non-threatening interpretations would have a protective influence and reduce the number of avoidant responses adopted was also explored.

Method

Participants

One hundred and sixty three children between 8 and 11 years old, attending mainstream school, were screened for their level of trait anxiety. Children were drawn from two primary schools in the South of England. One school served a predominantly middle class area, and one school served a predominantly socially deprived area. Parents or guardians of the children were sent details of the study and were able to withdraw their consent for their child to participate. Children also signed a consent form. Their class teacher administered the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985).

The RCMAS (Reynolds & Richmond, 1985) is a 37 item self-report instrument designed to assess the level and nature of trait anxiety in children aged 6

to 19. The instrument has been shown to possess satisfactory reliability and validity (Reynolds, 1980, 1982; Reynolds & Richmond, 1978, 1985). The RCMAS is easily administered in group settings for children aged 9 ½ years and older. For group administration with younger children, it is suggested that that the examiner reads each item aloud to the children (Reynolds & Richmond, 1985). Children are given a total anxiety score (0-28), which can be converted to a scaled t-score (M = 50, SD = 10). Scaled scores greater than 60 indicate children who should be assessed further, as they may be at risk for anxiety disorders. The RCMAS also contains a Lie Scale, scored from 0 to 9 and converted to a scaled score (M = 10, SD = 3). These items represent ideal behaviour such as "I am always good" and it is suggested that high scores indicate that the child is giving false information by "faking good". Scaled scores greater than 13, suggest inaccurate self-report.

Selection of children to form the High-Anxious group and the Low-Anxious group

A flow diagram illustrating how children were selected to form the two groups is shown in figure 1. Children who had a scaled score greater than 13 on the lie scale were not included, because this suggests that they had a tendency to be inaccurate in their self-reports (Reynolds & Richmond, 1985). The scores for the remaining 120 children on the RCMAS were divided into tertiles. Thirty children were selected from the children with scores in the top third (scaled t-score greater than or equal to 56) to form the High-Anxious group and 30 children were selected from the children with scores in the lowest tertile (scaled t-score less than or equal to 48) to form the Low-Anxious group. Children with scores ranging from 49 to 55 were excluded. The children were approximately balanced for age and gender. Table 1 shows the ages, gender and mean standardised RCMAS score for the children in the two groups, and in the total sample before selection.

Insert figure 1 about here

Insert table 1 about here

Pilot

The procedure was piloted using five children to assess test length and ability to maintain the child's interest. Two children were 7 years old, one was 8, one was 9 and one was 11. These data were not included in the analysis. The task was able to maintain the child's interest. However, the two seven year old children appeared to have difficulty switching from imagining the stories were about themselves, to imagining they were about another child (or vice versa). Therefore, only children of 8 ½ years or more were recruited for the main study.

In addition, Barrett et al. (1996), included a forced choice question, where children were asked to select one of four possible explanations (two threat and two non-threat) and asked "Which of the following explanations do you think is most likely?" In the pilot the younger children found it difficult to remember all the choices. Barrett et al. (1996) noted that the results obtained for the free choice question and the forced choice question were highly similar and therefore, they only presented data for the free response question. However, in the pilot study, children frequently changed from giving a Threat interpretation to the free response question, to a Non-Threat interpretation to the forced choice question. For these two reasons, the forced choice question was dropped.

Procedure

The British Picture Vocabulary Scale-Short form (BPVS; Dunn, Dunn, Whetton, & Pintilie, 1982) was administered to each child, to give a general estimate of intellectual ability. The BPVS is an achievement test designed to measure receptive vocabulary for Standard English in children aged 2 to 18 years. A word is spoken aloud to the child. They are asked to indicate which of four pictures depicts the word. The BPVS has been shown to have good internal consistency and construct validity (Dunn et al., 1982). Vocabulary has been found to be one of the most important contributors to measures of intelligence (Elliot, 1982).

The twelve ambiguous situations described in Barrett et al. (1996) were animated on computer to maintain the child's interest. The pictures were ambiguous, so that the intentions of the child could not be guessed. The stories were presented to the children by a psychologist, who was not aware of which group the child was in.

The children in each group were presented with the 12 ambiguous situations, which could be interpreted as threatening (Threat), or neutral or positive (Non-Threat). Six of the stories could be interpreted as containing a physical threat and six of the stories could be interpreted as containing a social threat. They were asked what they would do in each of the situations. Children were then asked to imagine that their parent had pointed out a threatening interpretation and a non-threatening interpretation. One threatening and one non-threatening interpretation were selected from the four possibilities in the forced choice questions in Barrett et al's. (1996) original design. Six of the stories parents first modelled the threatening interpretation, and in the other six stories, parents first modelled the non-threatening interpretation.

Children were shown the stories twice. The first time they saw the stories, they were asked to consider how they would respond (Self) and the second time, they were asked how another child, called Nick, would respond (Nick). Half of the children were first asked how they would respond, they were then shown the stories again and asked how Nick would respond (Self First). The other half of the children were first asked how Nick would respond, followed by how they would respond (Nick First). Children were told:

> "I am going to tell you about some situations you might find yourself in and ask you what you would think about them. I'm going to show you 12 stories on this computer, and I am going to show you these stories twice. The first time I want you to imagine these stories are about you and the second time I want you to imagine they are about a boy called Nick, who is about the same age as you. There are no right and wrong answers."
>
> For each ambiguous situation children were asked:
>
> 1. What do you (does Nick) think is most likely to be happening?
> 2. What would you (Nick) do about it?
> 3. What would you (Nick) do if you (he) told your (his) mum or dad and they said... (model Threat interpretation)
> 4. What would you (Nick) do if you (he) told your (his) mum or dad and they said... (model Non-Threat interpretation)

If children gave two or more possible interpretations for question 1, they were asked which explanation they thought was most likely, and this was the answer that was scored. If children's responses were impoverished, they were prompted and asked, "Can you tell me more about that?"

After the first presentation of the stories, the children were told, "I am now going to show you the same stories again. This time I would like you to tell me what

you would think and do in each of the situations." Or, "I am now going to show you the same stories again. This time, I would like you to tell me what another child, called Nick, would think and do in each of the situations. Nick is about the same age as you."

Their answers were recorded verbatim and coded later. The scoring system of Barrett et al. (1996) was used. The number of Threat interpretations (total Threat, Social Threat and Physical Threat) generated to question 1 was counted for each child, and the mean number of threat interpretations was calculated for each group. Examples of an answer that would be scored as social threat is "The children don't like me and don't want to play with me", and an example of a response that would be scored as a physical threat is "The dog might bite me".

Answers to the remaining three questions were categorised as Prosocial, Negative or Avoid. Responses scored as Prosocial were "Any solution which recommended a constructive prosocial solution" (Barrett et al., 1996, pp.192), such as "I'd go and ask to play with them." Responses scored as Negative were "Any solution which suggested a course of action which was potentially harmful or embarrassing to others" (Barrett et al., 1996, pp.192), such as "I'd go and hit them". Responses that were scored as Avoid were "Any solution which suggested actions that allowed escape or avoidance from potentially harmful or embarrassing situations" (Barrett et al., 1996, pp.192), such as, "I'd run away from the dog".

Barrett et al's. (1996) scoring system was not able to classify all types of responses. Therefore, two additional categories were used to score responses. These were Seek and Catastrophic. The category "seeking social support" was used by Vasey et al. (1993) and an example of a response scored in this category was "I'd tell the teacher". Seek solutions were defined as, "Any response that asks for the assistance of another person, who is not directly involved in the potentially

threatening situation". This might be a constructive solution, or it might be a way of avoiding by asking the other person to take away the threat. Catastrophic solutions were defined as, "Any proactive solution that was more extreme than the demands of the situation", such as "I'd call the fire brigade" or "I'd go to hospital". These solutions were not avoidant, as they did not remove the threat in the short term, but neither are they a constructive prosocial solution.

Results

Group differences

Chi square analysis found no difference between the selected and non-selected children for distribution of gender, ($\chi^2 = 0.00$, $p > 0.05$), the school the children came from ($\chi^2 = 0.16$, $p > 0.05$) and the distribution across school years ($\chi^2 = 0.97$, $p > 0.05$), suggesting that the selected sample of children were representative of the whole sample of children who were screened for anxiety. T-tests revealed a significant difference between the selected and non-selected children on age ($t(161) = 2.17$, $p < 0.05$). The selected children were significantly older than the non-selected children. This is probably because more of the younger children were excluded because of their high scores on the RCMAS Lie Scale.

In addition, chi square analysis found no difference between the groups of High- and Low-Anxious children for distribution of gender, ($\chi^2 = 0.60$, $p > 0.05$), the school the children came from ($\chi^2 = 0.07$, $p > 0.05$) and the distribution across school years ($\chi^2 = 0.00$, $p > 0.05$). T-tests revealed no significant differences between the High- and Low-Anxious groups on age ($t(58) = 0.63$, $p > 0.05$), or the vocabulary measure (BPVS) ($t(58) = 0.70$, $p > 0.05$). The groups were significantly different on the measure of trait anxiety (RCMAS) ($t(58) = 16.41$, $p<0.001$). Trait anxiety was the only variable measured which was able to discriminate between the

two groups.

Inter-rater reliability for scoring of ambiguous situations

A second person rated the responses of 10 of the 60 children who participated in the study. The total number of responses scored as Threat, Prosocial, Avoid, Seek, Negative or Catastrophic were counted for each of the four questions, for both Self and Nick. Spearman's rho non-parametric correlations were used to measure the association between the scores of the two raters. A correlation coefficient of 0.63 or greater was found for each of the categories. This was significant at the 5% level.

Group differences for children's interpretation of Threat and choice of solution

Table 2 shows the mean number of Threat interpretations for the High- and Low-Anxious groups, for both what they would think was happening (Self) and what another child would think was happening (Nick). Table 3 shows the mean number of Prosocial, Avoidant, Negative, seeking social support (Seek) and Catastrophic solutions the children in each group proposed for themselves (Self), for another child (Nick), and following they imagined that their parent had pointed out threatening (Parent Model Threat) or non-threatening (Parent Model Non-Threat) interpretations.

Insert table 2 about here

Insert table 3 about here

The data for each of the response categories (Threat, Prosocial, Avoid,

Negative, Seek, and Catastrophic) were inspected using histograms to explore whether they were normally distributed. Data for Threat were approximately normally distributed, for Self and Nick. Data for prosocial and avoidant responses were also approximately normally distributed across each condition (Self, Nick, Parents model threat, Parents model non-threat). However, data for Negative, Seek and Catastrophic categories were not normally distributed. This was due to a floor effect, as few of the responses that children gave fit these categories. In particular, the Negative category had very few endorsements, and therefore data coded as Negative were not included in the analysis. As the main response categories of interest (Threat, Prosocial and Avoid) were approximately normally distributed, parametric analyses were conducted. In addition, where the assumptions of parametric tests were not met, non-parametric equivalent tests were also conducted, where available.

Differences between High- and Low-Anxiety groups on perception of Threat and choice of solution.

Independent t-tests were employed to examine differences between Low- and High-Anxious children on the mean number of solutions scored as threatening (table 2), and the mean number of solutions proposed scored as Prosocial, Avoid, Seek and Catastrophic (table 3). No differences were found between the two groups for Threat interpretations ($t(58) = 0.32$, $p > 0.05$). In addition, there were no significant differences between the groups on the mean number of Social Threat interpretations ($t(58) = 0.58$, $p > 0.05$) or Physical Threat interpretations ($t(58) = 0.22$, $p > 0.05$).

Independent t-tests yielded no significant differences between the two groups for any of the response categories: Prosocial ($t(58) = 0.58$, $p > 0.05$); Avoidant ($t(58) = 0.09$, $p > 0.05$); Seek ($t(58) = 0.84$, $p > 0.05$) and Catastrophic ($t(58) = 0.68$,

$p > 0.05$). Mann-Whitney tests also produced no significant results for Seek ($z = 0.38$, $p > 0.05$) or Catastrophic ($z = 0.84$, $p > 0.05$). The hypothesis that High-Anxious children would interpret more of the situations as threatening and suggest more avoidant solutions than the Low-Anxious group was not supported.

These results were inconsistent with the findings of Barrett et al. (1996), who found that clinically anxious children were significantly more likely to perceive the ambiguous situations as threatening, and to produce more avoidant solutions. Therefore, further analyses were conducted to explore possible reasons for the difference. One reason for the difference may have been that the children were from a non-clinical sample, and the children in the High- and Low-Anxious groups did not have significantly different levels of anxiety to produce variations in responding across the two groups. The highest RCMAS score in the Low-Anxious group was 48, and the lowest RCMAS score in the High-Anxious group was 56. Both of these scores were within one standard deviation of the mean for the RCMAS ($M = 50$, $SD = 10$). In order to exclude children who were within one standard deviation of the mean, two subgroups were formed, consisting of the 12 highest and 12 lowest scorers on the RCMAS, and the analyses were repeated.

The results remained non-significant. No differences were found between the two groups for Threat interpretations ($t(22) = 0.64$, $p > 0.05$) or for the response categories: Prosocial ($t(22) = 1.04$, $p > 0.05$); Avoidant ($t(22) = 0.30$, $p > 0.05$); Seek ($t(22) = 0.73$, $p > 0.05$) and Catastrophic ($t(22) = 0.00$, $p > 0.05$). Mann-Whitney tests also produced no significant results for Seek ($z = 0.36$, $p > 0.05$) or Catastrophic ($z = 0.72$, $p > 0.05$).

In order to investigate further the non-significant results the current data were compared with the means reported by Barrett et al. (1996). In their sample, the mean number of Threat interpretations made by their anxious group was 5.8 ($SD = 2.6$)

and the mean number of Threat interpretations made by the non-clinic group was 3.5 (SD = 3.1). One sample t-tests indicated that the Low-Anxious group in the current sample gave a significantly higher number of Threat interpretations than Barrett et al's. non-clinical group ($t(29) = 5.53$, $p > 0.001$), and there was no significant difference between the Low-Anxious group and Barrett et al's. clinically anxious group ($t(29) = 1.56$, $p < 0.05$). However, on comparing the mean avoidant response, the Low-Anxious group produced significantly fewer avoidant responses than Barrett et al's. Anxious group ($t(29) = 2.68$, $p < 0.05$), but significantly more avoidant responses than the non-clinic group ($t(29) = 3.45$, $p < 0.01$).

Differences between the High- and Low-Anxious children's solutions for themselves compared with what they predicted another child would do.

Before comparing whether the High- and Low-Anxious groups differed in their choice of solutions for themselves compared with another child (Nick), it was important to explore whether there was an order effect. Order was counter-balanced across the two groups with 30 children receiving the stories about themselves first (Self First) and 30 children receiving stories about Nick first (Nick First). To explore whether there were any effects of order, group, or person being rated, a three factor repeated measures analysis of variance (ANOVA) of group (High-Anxious, Low-Anxious) by order of presentation (Self First, Nick First) by the person being rated (Self, Nick) was conducted for each of the response categories. There was no main effect of order for the categories: Threat ($F(1, 56) = 0.28$, $p > 0.05$); Prosocial ($F(1, 56) = 0.00$, $p > 0.05$); Avoidant, ($F(1, 56) = 0.41$, $p > 0.05$); Seek ($F(1, 56) = 0.68$, $p > 0.05$) or Catastrophic ($F(1, 56) = 0.16$, $p > 0.05$).

However, there was one interaction effect for order and person being rated, for perception of Threat ($F(1, 56) = 4.60$, $p < 0.05$). Children were more likely to

suggest that Nick would interpret the situations as threatening if they had been given stories about Nick prior to the stories about themselves. No other interaction effects were found for Prosocial ($F(1, 56) = 0.62$, $p > 0.05$), Avoidant ($F(1, 56) = 0.28$, $p > 0.05$), Seek ($F(1, 56) = 0.35$, $p > 0.05$) or Catastrophic ($F(1, 56) = 0.44$, $p > 0.05$). There were no interaction effects for order and group.

There was no significant main effect for group for interpretation of threat ($F(1, 56) = 0.95$, $p > 0.05$) or the response categories: Prosocial ($F(1, 56) = 0.07$, $p > 0.05$); Avoidant ($F(1, 56) = 0.10$, $p > 0.05$); Seek ($F(1, 56) = 0.55$, $p > 0.05$) and Catastrophic ($F(1, 56) = 0.17$, $p > 0.05$) (see table 3).

There was no main effect for the person being rated (Self, Nick) for Threat ($F(1, 56) = 1.46$, $p > 0.05$) or response categories: Prosocial ($F(1, 56) = 1.14$, $p > 0.05$); Avoidant ($F(1, 56) = 0.03$, $p > 0.05$); Seek ($F(1, 56) = 2.31$, $p > 0.05$) and Catastrophic ($F(1, 56) = 0.36$, $p > 0.05$) (see table 3).

There were no interaction effects for person being rated and group for Threat ($F(1, 58) = 1.15$, $p > 0.05$) or response categories: Prosocial ($F(1, 58) = 0.62$, $p > 0.05$); Avoidant ($F(1, 58) = 0.49$, $p > 0.05$); Seek ($F(1, 58) = 0.20$, $p > 0.05$) and Catastrophic ($F(1, 58) = 0.35$, $p > 0.05$)

Therefore the hypothesis that High-Anxious children would suggest that they would be more likely to use avoidant strategies than another child, but that this would not be found for Low-Anxious children, was not supported.

Non-parametric tests were not conducted because there is no equivalent non-parametric test available, therefore the results for Seek and Catastrophic must be interpreted cautiously.

Differences between High- and Low-Anxious children's solutions before and after their parent had pointed out threatening or non-threatening interpretation.

A two factor repeated measures ANOVA was conducted for group (High-Anxious, Low-Anxious) by parental influence (Self, Parent Model Threat, Parent Model Non-Threat). There was a significant main effect for parental influence for Prosocial ($F(2, 58) = 96.21$, $p < 0.001$); Avoid ($F(2, 58) = 63.21$, $p < 0.001$), Seek ($F(2, 58) = 48.28$, $p < 0.001$) and Catastrophic ($F(2, 58) = 77.07$, $p < 0.001$) response categories. However, there were no significant main effects for group for any of the response categories: Prosocial ($F(2, 58) = 0.33$, $p > 0.05$); Avoid ($F(2, 58) = 0.75$, $p > 0.05$); Seek ($F(2, 58) = 0.47$, $p > 0.05$) and Catastrophic ($F(2, 58) = 1.53$, $p > 0.05$). In addition, there were no interaction effects between group and parental influence: Prosocial ($F(2, 58) = 2.32$, $p > 0.05$); Avoid ($F(2, 58) = 2.39$, $p > 0.05$), Seek ($F(2, 58) = 0.67$, $p > 0.05$) and Catastrophic ($F(2, 58) = 0.05$, $p > 0.05$). The significant results are highlighted in table 3.

In order to explore whether the significant effect for parental influence was due to Parents Modelling Threat and/or Parents Modelling Non-Threat, simple contrasts were performed. These analyses revealed that following Parents Modelling Threat the number of Prosocial responses significantly reduced ($F(1, 58) = 52.17$, $p < 0.001$); the number of Avoid responses significantly increased ($F(1, 58) = 112.43$, $p < 0.001$), Seek responses significantly decreased ($F(1, 58) = 40.44$, $p < 0.001$) and Catastrophic solutions significantly increased ($F(1, 58) = 50.66$, $p < 0.001$), compared with before parental influence (Self). In addition, following Parents Modelling Non-Threat the number of Prosocial responses significantly increased ($F(1, 58) = 76.85$, $p < 0.001$), Seek responses significantly decreased ($F(1, 58) = 63.88$, $p < 0.001$) and Catastrophic solutions significantly decreased ($F(1, 58) = 24.91$, $p < 0.001$), compared with before parental influence (Self). However, there

was no significant change in the number of Avoid responses following parents model Non-Threat ($F(1, 58) = 0.14$, $p > 0.05$). The significant results are highlighted in table 3.

The mean number of responses before and after parental influence is illustrated in Figure 2.

Insert Figure 2 about here

Therefore, children were more likely to suggest avoidant or catastrophic solutions, and less likely to suggest prosocial or seeking social support solutions, after their parent had modelled Threat, and were more likely to select prosocial solutions after their parent had pointed out a non-threatening interpretation. However, parents modelling Non-Threat did not appear to reduce the number of avoidant responses the children chose.

Discussion

Comparison of High- and Low-Anxious groups on interpretation of Threat and choice of solution

The Threat interpretation bias in clinically anxious children reported by Barrett et al. (1996) was not found in this study. No difference was found in the mean number of Threat interpretations given by the High-Anxious group compared with the Low-Anxious group. One reason might be that the screening for High- and Low-Anxious children did not yield two different groups. It may be that only clinically anxious children display this interpretation bias, and High-Anxious children, whose anxiety is at the upper end of the normal range, do not display this bias.

However, this explanation is unlikely for four reasons. Firstly, when two subgroups were created of the 15 children scoring at each extreme on the RCMAS, there remained no significant difference between the two groups. Secondly, the interpretation bias has been found with High-Anxious children (e.g., Hadwin et al., 1997). Thirdly, many of the children (70%) in the High-Anxious group scored above the clinically significant cut off point (RCMAS scaled score greater than 60), suggesting that they were at risk for anxiety disorders (Reynolds & Richmond, 1985). Fourthly, closer comparison with Barrett et al's. (1996) study suggested that the Low-Anxious group in the current sample gave a significantly higher number of Threat interpretations than Barrett et al's. non-clinical group. Therefore, it appears that rather than the High-Anxious group not displaying this anxiety bias, the Low-Anxious children displayed as much of an interpretation bias as the clinically anxious children in Barrett et al's. study.

In order to have been more confident of a difference between the High- and Low-Anxious sub-groups, a larger sample of children could have been screened. In addition, teacher or parent reports of the children's level of trait anxiety could have been measured, and this information included in the selection process. However, past research has indicated that parents, teachers and children's self-reports are poorly correlated (Larsson, Lennart, & Morris, 2000). One reason for this may be that young children are not accurate in self-report.

A further explanation for these results being inconsistent with those of Barrett et al. (1996), is that there was a difference in the administration of the stories. The stories were illustrated on computer, and this may have made a Threat interpretation more likely. However, care was taken to ensure that the pictures remained ambiguous.

A study using a similar design for obtaining plans of how to react in

ambiguous situations, initially found no difference between the clinical and non-clinical groups (Chorpita, Albano, & Barlow, 1996). They indicated that when children were asked to produce a single response, these responses were often non-anxious and socially appropriate. However, when they asked children for a list of responses, to control for social desirability, a difference between the clinical and non-clinical children was found. Therefore, in this study, asking children to generate a list of plans may have controlled for social desirability. Chorpita et al's. study had very small numbers of children in each group.

No difference was found between the Low- and High-Anxious groups on the mean number of avoidant responses produced. As there was no significant difference in the mean number of Threat interpretations, this non-significant result would be predicted. Indeed, Barrett et al. (1996) found no significant difference between clinically anxious and non-clinic children in the proportion of avoidant responses made, given that the children had made a Threat interpretation.

Comparison of children's responses for how they would respond compared with how they predicted another child would respond

No difference was found between the children's choice of solution for themselves and what they predicted another child would do. This is not consistent with the results of Vasey et al. (1992), who found that clinically anxious children predicted that other children would use problem-solving strategies, suggesting that they did not have a knowledge deficit for the type of strategies that are useful in reducing anxiety. However, the base rates for suggesting avoidant responses were low ($\underline{M}$ = 1.6), indicating that children in this study may have all been similar to non-anxious children. Vasey et al. found no difference between non-anxious children's choice of strategy for themselves compared with another child.

Given that the results in the current study revealed no differences in either threat perception or choice of response between the Low- and High-Anxious groups, the children were likely to be reporting accurately what their peers would do. In addition, they may have based the judgement in deciding how another child would respond to the situation, on how they themselves would respond. Participants in Vasey et al's. (1992) study were told that the child in their stories wanted to stop worrying and were asked how the child might help him/herself stop worrying, whereas, this study asked what they thought another child would think is happening and what they would do. The children in the current study might have had the knowledge, but not be using it. It would therefore be useful to repeat the study, firstly, asking children what they would do, and secondly asking what they could do to make themselves feel better. A further difference from Vasey et al's. study is that their situations described clear threats which could not be controlled, and therefore could not be solved. The current study used ambiguous situations. However, it might be expected that if situations could be solved, a greater difference between High- and Low-Anxious children would be found, and so this is unlikely to explain the non-significant result.

Comparing children's solutions before and after their parent had pointed out a threatening or non-threatening interpretation

Children in both groups were more likely to suggest avoidant solutions if they imagined that their parent had modelled a threatening interpretation and were more likely to suggest a prosocial solution after they imagined that their parent had pointed out a non-threatening interpretation. This suggests that children's choice of solution is influenced by their parents. This is consistent with the results of Dadds et al. (1996), who found that following family discussions clinically anxious children

tended to change their choice of solution, being more likely to choose an avoidant solution. In addition, pointing out the non-threatening interpretation led to children being more likely to suggest prosocial means of approaching the situation. This is also consistent with Dadds et al. who found that following family discussion, non-clinic children were more likely to select a prosocial solution.

However, the current study found no group difference for avoidant responses following parents modelling Non-Threat. Parents modelling non-threat did not appear to have a protective function in reducing avoidant responses. As Seek responses decreased, it may be that when parents modelled Non-Threat, children who previously said they would seek social support, then said they would use prosocial solutions, accounting for the increase in prosocial solutions. However, this explanation must be treated with caution because of the small number of responses coded as Seek, and because the variable violated the assumptions of parametric tests as it was not normally distributed.

Dadds et al. (1996) did not find that parents modelling threat had a role in enhancing children's choice of avoidant solutions. However, this study indicates that parents modelling may have a role. This study did not allow the examination of other aspects of family discussions that appeared to influence children to change their choice of solution, reported in Dadds et al. These included reciprocating and rewarding avoidance, listening to their children, expressing doubt about the child's competency, encouraging problem solving and rewarding courage. They proposed that it was the interactions and reciprocation of solution choice occurring in the family discussions, which had the most influence on the child's selection of response.

It would have been more revealing to have involved parents in the study and asked them to suggest either a standardised threatening interpretation or a non-

threatening interpretation to their child. This could be done as part of a parent training programme, to highlight to parents of anxious children the effect of interpretation bias. This could help parents encourage children to see an alternative interpretation of potentially threatening situations.

Overall limitations of the study

Individual differences between children in each group might not have been sufficiently extreme to reveal any significant differences. The participants recruited were non-referred children, and so it would be expected that the results found in the non-clinical sample would be present to a greater extent in a clinical sample, but this remains to be tested.

Whilst the study used hypothetical situations, it is conceivable that the effects would be also found in real life situations. It is difficult to find situations that are anxiety provoking for all children. Cobham, Dadds, & Spence (1999) studied children's responses to real life situations, however most of the children and their parents did not expect that they would find the situation anxiety provoking. Alternatively, situations that were specific to each child's anxiety could be used, but standardising this would be difficult. There have been several criticisms of studies that use hypothetical situations (Bijttebier, Vertommen, & Vander Steene, 2001). In particular, the responses children gave may not accurately reflect what they would do if they were in that situation.

It would have been interesting to pursue other group differences, such as gender and school (due to the expected differences in social economic status between children in the two schools). However, these variables were not counter-balanced across the groups, which precluded any analysis of this kind. In addition, it would be useful to assess any developmental differences by comparing the youngest

and the oldest children, particularly as Barrett et al's. sample of children were aged between 7 and 14. However, the sample size was too small to do this here.

Conclusions

This study failed to reveal significant differences between the Low- and High-Anxious groups. This may be because the groups were not different enough, and also the children produced socially desirable responses. The expected differences between children's selection of solution for themselves and for another child were not found. This may suggest that children did have a knowledge deficit for strategies that would be useful in reducing anxiety in the short term.

An effect for the influence of parents when children were asked to imagine that their parent modelled threat or non-threat was found. Parents were able to influence whether or not children proposed prosocial solutions. However, they were not able to reduce the likelihood of proposing avoidant responses. These results suggest that both child factors and parent factors have a role in influencing children's choice of response.

Clinical implications

This study highlights the importance of including parents in any intervention, and it suggests that discouraging parents from pointing out threatening interpretation would be helpful in reducing children's likelihood of using avoidant strategies. It would also be useful to examine the influence of parents on the choice of response of adolescents. The participants in this study were between 8 and 11. This was the age group that Barrett, Dadds and Rapee (1996) found showed greater changes following parental involvement in anxiety management programmes. These programmes were less successful with adolescents. It may be expected that adolescents would be less influenced by their parents.

Revisions of the study need to take place, as described above, particularly by asking children what another child would do to make them feel better. If the measure is revised in this way and the study repeated, the ambiguous situations could be used in clinical settings to assess an individual child's knowledge about how to respond in ambiguous situations. This has implication for therapy. It would be useful to know whether anxious children need to: 1) learn new strategies; 2) evaluate the effectiveness of several strategies they are already aware of; 3) increase their perceived efficacy of their ability to carry out problem-focused strategies; or 4) need help to put in place the strategy which they already know to be most effective, but which they do not choose because it does not reduce their anxiety in the short term (Vasey & Daleiden, 1994). Anxious children may vary as to which point clinical intervention needs to be aimed. There may be individual differences, within the group of children who are diagnosed as clinically anxious, but which is not illustrated by a study such as this, which examines group means. It would be useful to examine more closely a group of clinically anxious children to study differences within this group.

In addition, the presentation of the illustrated stories could be a basis for family discussions, which are facilitated and guided by a therapist. The children could be encouraged to think about different solutions to the situations and test out prosocial solutions in their life, with the support of their parent. However, as Ollendick, Vasey and King (2001) point out, there may be difficulties in encouraging children who have not developed the appropriate social skills to produce prosocial responses, such as approaching children and asking them if they could play. This could result in further negative experiences confirming to the child that the situation is threatening. Observational playground studies could be carried out to assess whether this is the case.

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Table 1

Distribution of gender, school and year and mean age, RCMAS and BPVS score for total sample, selected group and High- and Low-Anxious subgroups

	Total sample	Selected group	High-Anxious group	Low-Anxious group
n	163	60	30	30
Gender (%)				
Male	51.5	51.7	46.7	56.7
School (%)				
School 1	45.4	43.3	46.7	40.0
School Year (%)				
year 4	31.3	26.7	26.7	26.7
year 5	35.0	36.7	36.7	36.7
year 6	33.7	36.7	36.7	36.7
Age (years)				
M	10.0	10.3	10.2	10.3
SD	0.9	0.9	0.9	1.0
Range	8.5-11.5	8.5-11.5	8.5-11.5	8.6-11.5
RCMAS (t score)				
M	51.7	[a]	61.9	39.8
SD	9.8		4.6	5.7
Range	26-79		56-75	26-48
BPVS (t score)				
M	[b]	99.7	98.1	101.2
SD		17.1	19.8	14.2
Range		41-146	41-146	81-134

RCMAS: Revised Children's Manifest Anxiety Scale

BPVS: British Picture Vocabulary Scale

[a] No measures of central tendency for the RCMAS are reported for the selected group, because this would be meaningless, as children scoring close to the mean were excluded.

[b] BPVS was only given to children who were selected.

Table 2

Mean number of stories perceived as threatening when the High-Anxious and Low-Anxious children were asked what they think is happening (Self), and what Nick thinks is happening (Nick).

Perception of situation	Group	Self	Nick
Non-Threat	High		
	M, (SD), range	6.3, (2.3), 3-10	6.0, (2.0), 2-10
	Low		
	M, (SD), range	6.7, (1.8), 4-11	6.7, (1.8), 4-10
Threat	High		
	M, (SD), range	5.5, (2.3), 2-9	6.0, (2.0), 2-10
	Low		
	M, (SD), range	5.3, (1.8), 2-8	5.3, (1.8), 1-8
Social Threat	High		
	M, (SD), range	3.0, (1.7), 0-6	3.3, (1.4), 0-6
	Low		
	M, (SD), range	2.7, (1.4), 0-5	2.6, (1.3), 0-5
Physical Threat	High		
	M, (SD), range	2.5, (1.4), 0-5	2.7, (1.2), 1-5
	Low		
	M, (SD), range	2.5, (0.9), 1-4	2.7, (1.1), 1-5

Table 3

Mean number of responses for the five response categories for "Self", "Nick" and following parents pointing out Threat or Non-Threat interpretation

Response Category	Group	Self	Nick	Parents point out Threat	Parents point out Non-Threat
Prosocial	High				
	M, SD, range	7.4 (2.4) [ab] 2-11	7.9 (2.0) 4-11	6.0 (2.4) [a] 1-11	9.9 (2.1) [b] 4-12
	Low				
	M, SD, range	7.8 (1.5) [ab] 3-10	7.8 (1.9) 1-11	5.0 (2.2) [a] 1-11	9.3 (1.6) [b] 7-12
Avoid	High				
	M, SD, range	1.6 (1.4) [a] 0-5	1.5 (1.3) 0-6	3.7 (2.0) [a] 0-9	1.6 (1.9) 0-7
	Low				
	M, SD, range	1.6 (1.4) [a] 0-6	1.8 (1.5) 0-6	4.7 (1.8) [a] 1-9	1.5 (1.2) 0-4
Negative	High				
	M, SD, range	0.1 (0.4) 0-2	0.0 (0.3) 0-1	0.2 (0.6) 0-3	0 (0) 0
	Low				
	M, SD, range	0.0 (0.2) 0-1	0.2 (0.6) 0-3	0.0 (0.2) 0-1	0 (0) 0
Seek	High				
	M, SD, range	2.2 (1.8) [ab] 0-9	1.8 (1.6) 0-5	0.6 (0.8) [a] 0-3	0.4 (0.8) [b] 0-4
	Low				
	M, SD, range	1.8 (1.2) [ab] 0-4	1.6 (1.6) 0-8	0.7 (0.8) [a] 0-2	0.3 (0.7) [b] 0-3
Catastrophic	High				
	M, SD, range	0.6 (0.8) [ab] 0-2	0.6 (0.9) 0-3	1.4 (0.9) [a] 0.0-3.0	0.0 (0.3) [b] 0.0-1.0
	Low				
	M, SD, range	0.7 (0.7) [ab] 0-3	0.6 (0.6) 0-2	1.6 (0.9) [a] 0-3	0.3 (0.5) [b] 0-2

Means with the same super scripts ([a, b]) were significantly different from each other using 2x3 Repeated Measures ANOVA ($p < 0.05$).

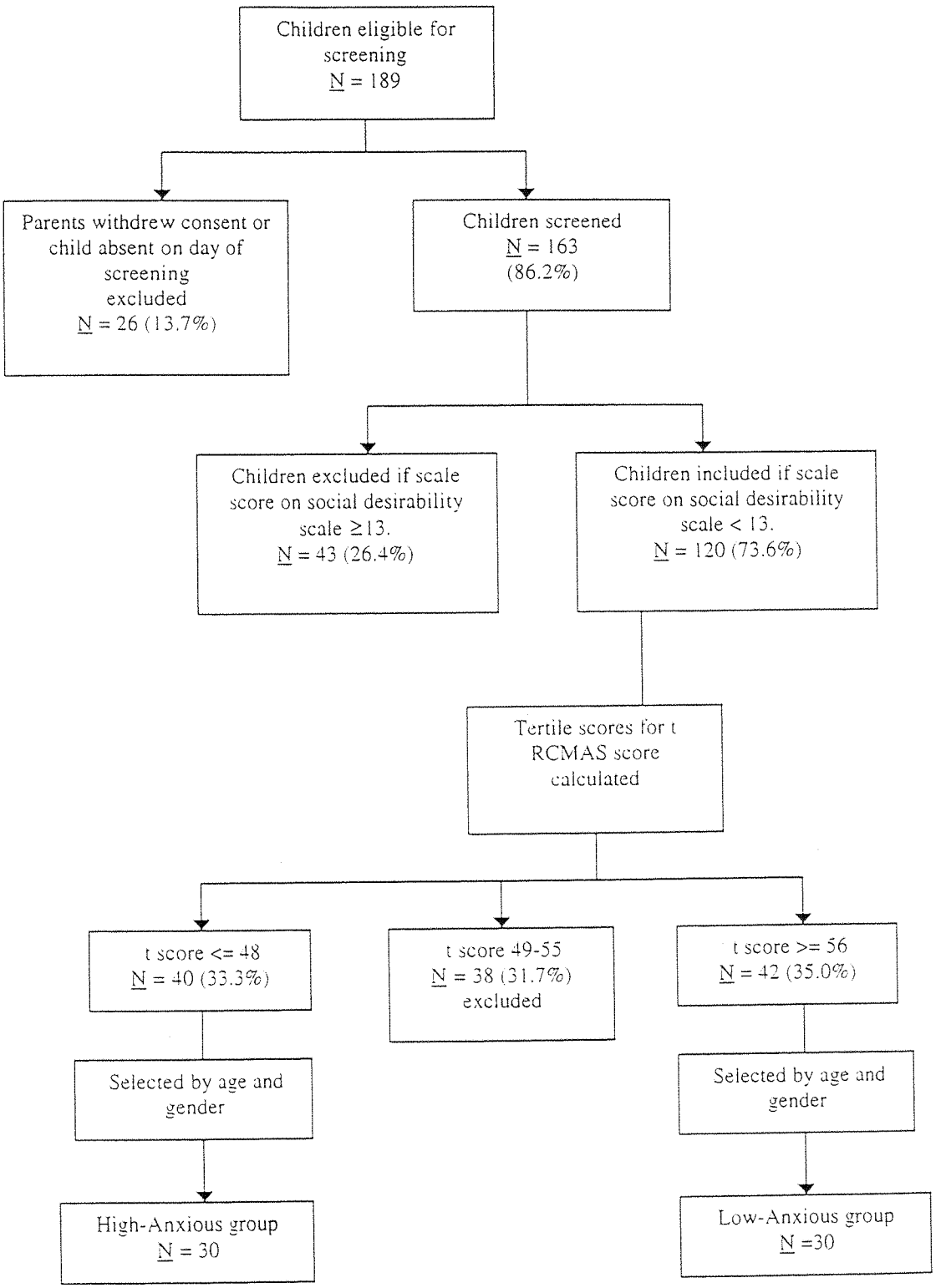

Figure 1. Flow diagram of the selection of children to form the High-Anxious and Low-Anxious groups

Figure 2. Mean number of solutions given by High- and Low-Anxious children before parental influence and after parents model threatening or non-threatening interpretations.

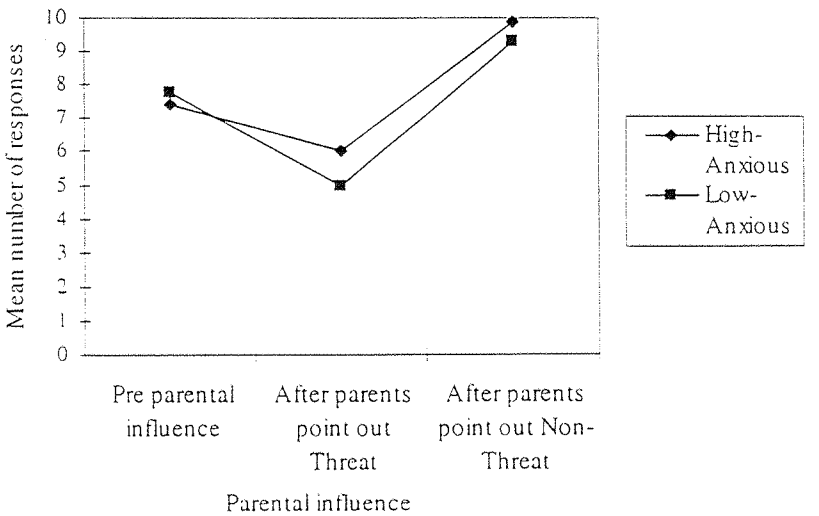

Figure 2a Mean number of prosocial solutions given by High- and Low-Anxious children before parental influence and after they model Threat and Non-Threat

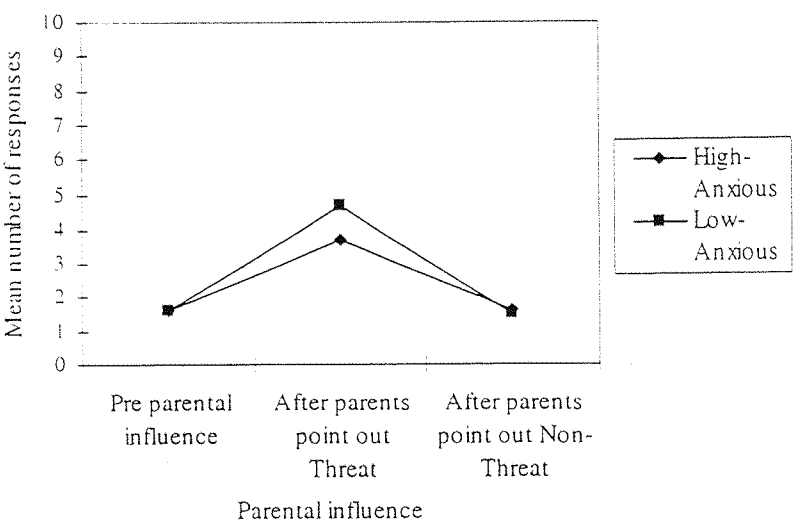

Figure 2b. Mean number of avoidant solutions given by High- and Low-Anxious children before parental influence and after they model Threat and Non-Threat

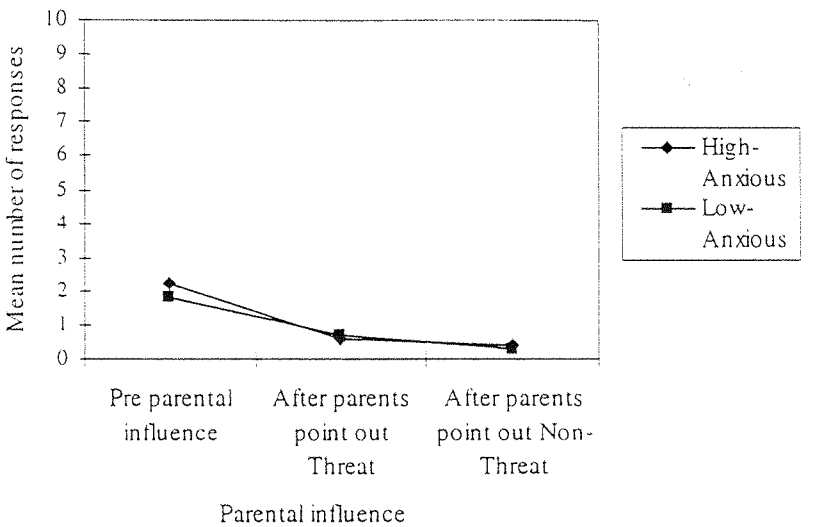

Figure 2c. Mean number of seeking social support solutions given by High- and Low-Anxious children before parental influence and after they model Threat and Non-Threat

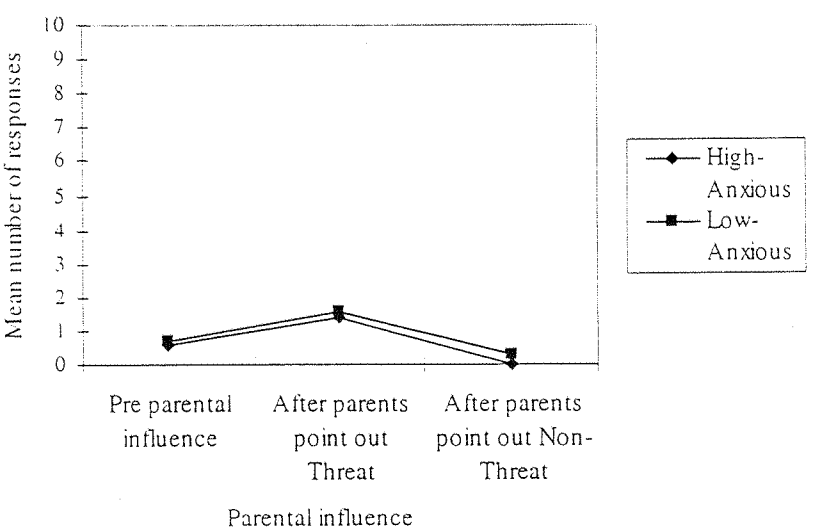

Figure 2d. Mean number of catastrophic solutions given by High- and Low-Anxious children before parental influence and after they model Threat and Non-Threat

List of Appendices

Appendix 1.

University Ethics Approval

University of Southampton

Department of Psychology

University of Southampton
Highfield
Southampton
SO17 1BJ
United Kingdom

Telephone +44 (0)23 8059 5000
Fax +44 (0)23 8059 4597
Email

11th December 2000

Jackie Preston
Department of Clinical Psychology
University of Southampton
Highfield
Southampton SO17 1BJ

Dear Jackie,

Re: Application for Ethical Approval

I am writing to confirm that your ethical application titled "The influence of knowledge and parental encouragement on anxious children's choice of responses to ambiguous situations", has been given approval by the department.

Should you require any further information, please do not hesitate in contacting me on [redacted]

Yours sincerely,

[redacted]

Kathryn Smith
Ethical Secretary

Appendix 2.

Parent information sheet and opportunity to withdraw consent for screening

Parent opportunity to withdraw consent for the main study

Child consent form

University of Southampton

Department of Psychology

Training Course in Clinical Psychology

University of Southampton
Highfield
Southampton
SO17 1BJ
United Kingdom

Telephone +44 (0)23 8059 5321
Fax +44 (0)23 8059 2588
Email

PARENT/GUARDIAN INFORMATION SHEET AND OPPORTUNITY TO WITHDRAW CONSENT

An exploration of the coping strategies used by children

We would like to invite your child to take part in a research study. Before you decide, it is important for you to know why the research is being done and what it will involve. Please take time to read the information carefully.

Purpose of the study.
Anxiety is a naturally occurring feeling and some adults and children are more likely to worry than others. Both people who worry a lot and those who worry less fall with the normal range. This study aims to investigate the coping strategies used by children in naturally occurring situations, such as imagining being approached by a big dog. We would like to compare the answers of children with low anxiety with answers from children who have higher anxiety, within the normal range. This study will form part of the Training Course in Clinical Psychology, at the University of Southampton.

Why has my child been chosen?
Your child's class has been chosen because they are the age of the children we are asking to participate. The headteacher and class teacher have given permission for the study to take place.
It is up to you to decide whether or not your child should take part. IF YOU DO NOT WANT YOUR CHILD TO TAKE PART, PLEASE RETURN THE FORM PROVIDED. If you decide to take part, you are still free to withdraw at any time and without giving a reason. If you decide not to take part your child will complete a short quiz so they will not be identified as someone who has been withdrawn.

What will happen to my child if they take part?
Your child's teacher will ask the class to complete questionnaire that screens for anxiety. The teacher will **not** be given the test scores. The questionnaires will only be recognisable by number. From the children's scores we will identify two groups of children, those who have relatively low levels of anxiety and those who have relatively high levels of anxiety. Those children who meet the criteria will be asked to complete a second task. You will be informed of the date that this will take place and given a second opportunity to withdraw your child from the study. Those children who are selected will be shown some stories on a computer and asked to answer some questions. This should take about 50 minutes. The study is **not** designed to increase children's anxiety and children who have completed the computer task have reported enjoying taking part. If your child is selected to take part in the second part of the study and you are welcome to view the stories in advance.

Will my child taking part in this study be kept confidential?
No record of your child's name will be kept on the answer sheet, and their name will not be disclosed outside the school. The answer sheet will be identifiable only by number. All information that is collected about your child will be kept strictly confidential. Any information which leaves the school will have your name and address removed so that your child cannot be recognised from it.

What happens to the results of the research study?
Results of the study will be available at Southampton University. Your names will not be identified in any report.

What should I do if I have any concerns?
There is a natural variation in levels of anxiety in children. However, if you feel your child's anxiety is causing them lots of problems in everyday life, you may wish to contact your G.P. or health visitor.

If you require any further information about the study (head teacher) will be able to contact me.

Thank you for your help.
Jackie Preston, Trainee Clinical Psychologist
University of Southampton.

University of Southampton

Department of Psychology

Training Course in Clinical Psychology

University of Southampton
Highfield
Southampton
SO17 1BJ
United Kingdom

Telephone +44 (0)23 8059 5321
Fax +44 (0)23 8059 2588
Email

Please complete this form if you DO NOT wish your child to take part in the research.

Dear (teacher's name),

I do **NOT** wish my child .....(name of child).....
to take part in the study: **An exploration of the coping strategies used by children.**

I understand that this will not affect his/her grade in any way and I do not have to give a reason for withdrawing from the study.

Signed.....(parent)

University of Southampton

Department of Psychology

Training Course in Clinical Psychology

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Email

Dear parent/guardian,

Following my letter of 29th January, I would like to confirm that your child has met the selection criteria for the study: **An exploration of the strategies used by children.** I will be attending school on ..... to complete the test. Please ask your child if they are happy to take part. Your child will be asked to sign a copy of the attached form to confirm that they would like to take part.

If you do not wish your child to take part for any reason please complete the form below, and return to your child's teacher by Friday 30th March.

Yours faithfully,

Jackie Preston
Trainee Clinical Psychologist

Please complete this form if you DO NOT wish your child to take part in the research.

Dear .....(teacher's name),

I do **NOT** wish my child .....(name of child)
to take part in the study: **An exploration of strategies used by children.**

I understand that this will not affect his/her grade in any way and I do not have to give a reason for withdrawing from the study.

Signed.....(parent)

University of Southampton

Department of Psychology

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Consent form for school children

An exploration of the coping strategies used by children

Please tick the boxes.

I would like to take part in the study ☐

I have been able to ask questions ☐

I know I do not have to take part if I do not want to and I can stop at any time ☐

Signed ..... (please write your name)

Appendix 3.

Ambiguous situations:

List of ambiguous situations

Illustrations

You are sleeping over at a friend's house and his parents seem really annoyed and cranky all the time.

a) Why do you think your friend's parents are really annoyed and cranky all the time?

b) What would you do about it?

c) What would you do if you rang your mum or dad and they said, "They might be annoyed because they don't want you there"?

d) What would you do if you rang your mum or dad and they said, "They've probably just had a row"?

You notice at school one day that a favourite book of yours is missing. Later you notice that a boy in your class has a similar book in their bag.

a) What do you think has happened to your book?

b) What will you do?

c) What would you do if you told your mum or dad and they said, "Your book might be at home somewhere"?

d) What would you do if you told your mum or dad and they said, "The book seems to have been stolen"?

You arrange to have a party at four o'clock, and by half past four non-one has arrived.

a) What do you think is most likely to have happened?

b) What would you do about it?

c) What would you do if your mum or dad said, "They are probably stuck in traffic"?

d) What would you do if your mum or dad said, "They probably aren't interested in coming to your party"?

You see the headmaster walking around the playground and he has been asking other children where you are.

a) Why do you think the headmaster is looking for you?

b) What would you do about it.

c) What would you do if your mum or dad said, "The teacher is probably pleased with you."

d) What would you do your mum or dad said, "The teacher might be going to tell you off."

You are showing your school project in front of the class and two students at the back are giggling.

a) What do you think is most likely to have happened? Why do you think they are giggling?

b) What would you do about it?

c) What would you do if you told your mum or dad and they said, "They were probably being silly and laughing at something else."

d) What would you do if you told your mum or dad and they said, "They think your project isn't very good."

You see a group of students playing a great game. You walk over and want to join in and you hear them laughing.

a) What do you think is most likely to have happened? Why do you think they are giggling?

b) What would you do about it?

c) What would you do if you told your mum or dad and they said, "They don't want to play with you."

d) What would you do if you told your mum or dad and they said, "They are probably laughing about something in the game."

You are walking to a friend's house and a big dog comes up.

a) What do you think is most likely to have happened? Why do you think the big dog has come up to you?

b) What would you do about it?

c) What would you do if you told your mum or dad and they said, "The dog's just being friendly"?

d) What would you do if you told your mum or dad and they said, "The dog thinks you are a burglar and might bite you"?

You are reading and can't see the words properly.

a) What do you think is most likely to have happened? Why do you think you cannot see the words properly?

b) What would you do about it?

c) What would you do if you told your mum or dad and they said, "Your eyes are probably tired"?

d) What would you do if you told your mum or dad and they said, "That sounds like there is something really wrong with your eyes"?

You are in the middle of a class and are called to have a health check.

a) What do you think is most likely to have happened? Why do you think you have been called to have a health check?

b) What would you do about it?

c) What would you do if you told your mum or dad and they said, "They have probably picked you because they think there might be something wrong with you"?

d) What would you do if you told your mum or dad and they said, "Everybody is probably having the health check"?

Do you have a dog? If not pretend you do for the next situation. It is Saturday and you are playing inside. Your dog starts barking and growling outside.

a) What do you think is likely to have happened? Why do you think the dog is barking?

b) What would you do about it?

c) What would you do if you told your mum or dad and they said, "There's probably some trouble outside"?

d) What would you do if you told your mum or dad and they said, "There's probably just another dog outside"?

On the way to school you feel funny in the tummy.

a) What do you think is most likely to have happened? Why do you feel funny in the tummy?

b) What would you do about it?

c) What would you do if you rang your mum or dad and they said, "You might have a nasty bug"?

d) What would you do if you rang your mum or dad and they said, "It's probably nothing and may go away soon"?

You are at a party and the lights are off. You smell smoke.

a) What do you think is most likely to have happened?

b) What would you do about it?

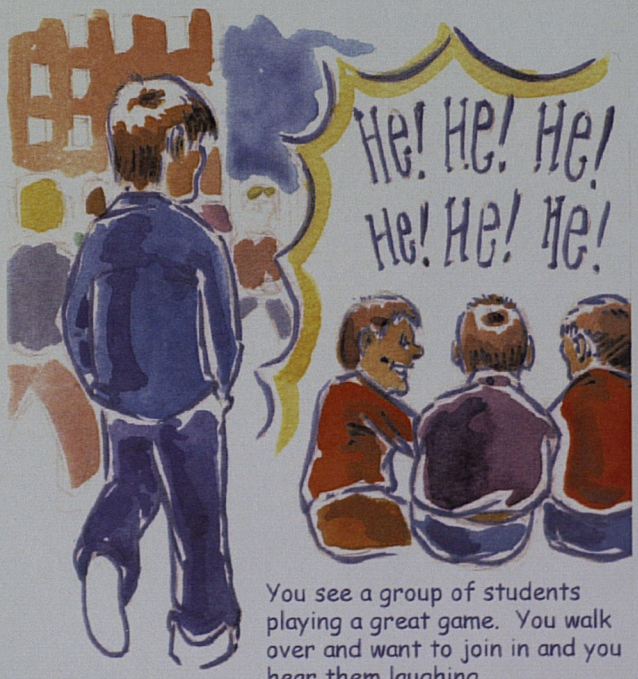
c) What would you do if you told your mum or dad and they said, "There might be a fire"?

d) What would you do if you told your mum or dad and they said, "Someone has probably turned the lights out and some adults are smoking"?

Social threat

You are sleeping over at a friend's house and his Parents seem to really annoyed and cranky all the time.

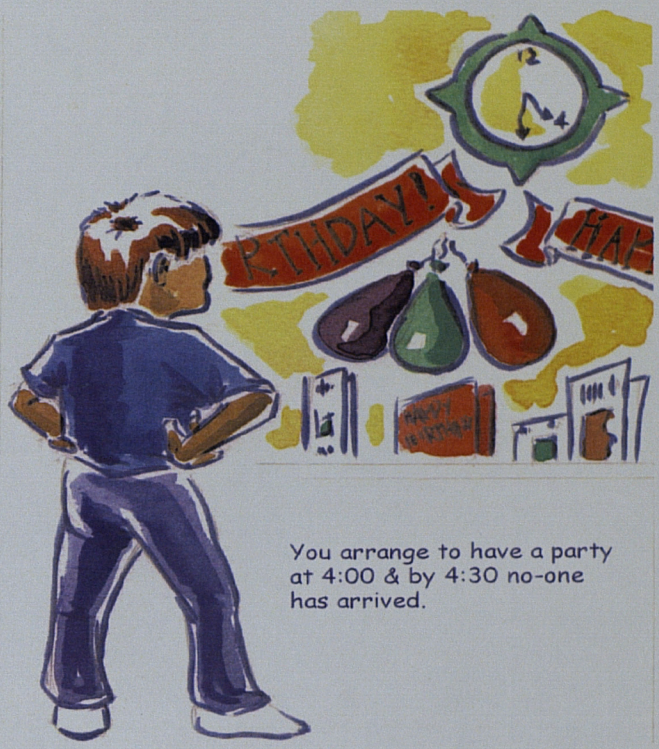
You notice at school one day that a favourite book of yours is missing.
Later you notice that a boy in your class has a similar book in their bag.



You see a group of students playing a great game. You walk over and want to join in and you hear them laughing.

You see the headmaster walking around the playground & he has been asking other children where you are.

You are showing your school project in front of the class and two students at the back are giggling



You arrange to have a party at 4:00 & by 4:30 no-one has arrived.

Physical threat

You are walking to a friend's house and a big dog comes up.

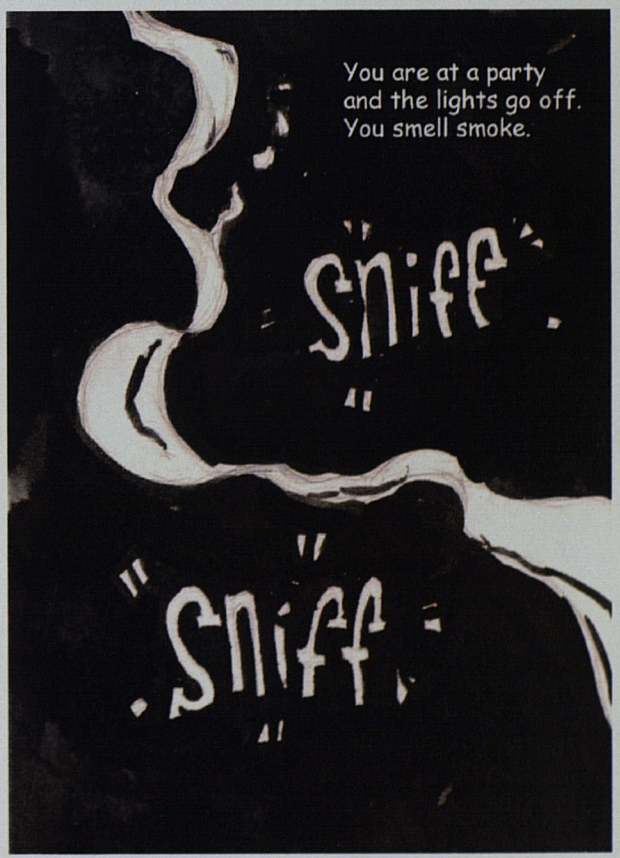
You are reading and can't see the words properly.

You are in the middle of a class
and are called to have a health check.

It is Saturday and you are playing inside.
Your dog starts barking & growling outside.

On the way to school you feel
funny in the tummy.

You are at a party
and the lights go off.
You smell smoke.



Appendix 4.

Measures:

Revised Children's Manifest Anxiety Scale

Instructions for administration

British Picture Vocabulary Scale

"WHAT I THINK AND FEEL"

(RCMAS)

Cecil R. Reynolds, Ph.D., and Bert O. Richmond, Ed.D.

Published by
WESTERN PSYCHOLOGICAL SERVICES
wps® 12031 Wilshire Boulevard
Los Angeles, CA 90025-1251
Publishers and Distributors

Name: _____

_____

Age: _____ Grade: _____

Sex *(circle one)*: Girl Boy

Today's Date: _____

School: _____

Teacher's Name *(optional)*: _____

_____

DIRECTIONS

On the back of this form, there are some sentences that tell how some people think and feel about themselves. Read each sentence carefully. Circle the word *Yes* if you think the sentence is true about you. Circle the word *No* if you think it is *not* true about you. Circle an answer for every sentence, even if it is hard to choose one that fits you. Do not circle both *Yes* and *No* for the same sentence. If you want to change an answer, draw an X through your first answer and then circle your new choice.

There are no right or wrong answers. Only you can tell us how you think and feel about yourself. Remember, after you read each sentence, ask yourself, "Is it true about me?" If it is, circle *Yes*. If it is not, circle *No*.

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Circle one answer for each sentence.

Yes	No	1. I have trouble making up my mind.
Yes	No	2. I get nervous when things do not go the right way for me.
Yes	No	3. Others seem to do things easier than I can.
Yes	No	4. I like everyone I know.
Yes	No	5. Often I have trouble getting my breath.
Yes	No	6. I worry a lot of the time.
Yes	No	7. I am afraid of a lot of things.
Yes	No	8. I am always kind.
Yes	No	9. I get mad easily.
Yes	No	10. I worry about what my parents will say to me.
Yes	No	11. I feel that others do not like the way I do things.
Yes	No	12. I always have good manners.
Yes	No	13. It is hard for me to get to sleep at night.
Yes	No	14. I worry about what other people think about me.
Yes	No	15. I feel alone even when there are people with me.
Yes	No	16. I am always good.
Yes	No	17. Often I feel sick in my stomach.
Yes	No	18. My feelings get hurt easily.
Yes	No	19. My hands feel sweaty.
Yes	No	20. I am always nice to everyone.
Yes	No	21. I am tired a lot.
Yes	No	22. I worry about what is going to happen.
Yes	No	23. Other people are happier than I.
Yes	No	24. I tell the truth every single time.
Yes	No	25. I have bad dreams.
Yes	No	26. My feelings get hurt easily when I am fussed at.
Yes	No	27. I feel someone will tell me I do things the wrong way.
Yes	No	28. I never get angry.
Yes	No	29. I wake up scared some of the time.
Yes	No	30. I worry when I go to bed at night.
Yes	No	31. It is hard for me to keep my mind on my schoolwork.
Yes	No	32. I never say things I shouldn't.
Yes	No	33. I wiggle in my seat a lot.
Yes	No	34. I am nervous.
Yes	No	35. A lot of people are against me.
Yes	No	36. I never lie.
Yes	No	37. I often worry about something bad happening to me.

Instructions for teachers for the administration of the "What I Think and Feel" Questionnaire

1. Please could you give each child the information sheet and "opt out" form to give to their parents.

2. Give the "What I think and feel" questionnaire to each child (apart from those whose parent has withdrawn them from the study).

3. Give the quiz to any children who have been removed from the study.

4. Give the children who are completing the "What I think and feel" questionnaire the following verbal instructions:

a) Write your age on the front of the form

b) Circle girl/boy as appropriate

c) Read the directions: "Here are some sentences that tell how some people think and feel about themselves. Read each sentence carefully. Circle the word "Yes" if you think it is true about you. Circle the word "no" if you think it is not true about you. Answer every question even if some are hard to decide. Do not circle both "Yes" and "No" for the same sentence. There are no right and wrong answers. Only you can tell us how you think and feel about yourself. Remember, after you read each sentence, ask yourself "Is it true about me?" If it is, circle "Yes". If it is not circle "No".

d) Turn over the page

e) Read each item aloud to the class.

BPVS SHORT FORM

est Items and Abbreviated Instructions

Administering the Training Items

For most subjects under the age of 8:
Use plates A, B, C and D. Administer as many training item series as necessary to secure four consecutive correct reponses.

For most subjects aged 8 and over:
Use plates C, D, E and F. Administer as many training item series as necessary to secure four consecutive correct responses.

Practice Words and Keys

Training Plate	Initial Series	First Alternative Series	Second Alternative Series	Third Alternative Series
A	dog (3)	baby (2)	bed (1)	knife (4)
B	man (2)	comb (3)	fork (4)	mouth (1)
C	swing (3)	drink (4)	climb (2)	walk (1)
D	sleep (2)	eat (1)	cry (4)	crawl (3)
E	wheel (4)	zip (2)	rope (1)	rake (3)
F	mopping (1)	cycling (2)	sawing (4)	mowing (3)

(Complete directions are given in Part 1 of the Manual.)

Administering the Test Items

Basal: Highest 6 consecutive correct responses.

Ceiling: Lowest 6 consecutive responses containing 4 errors.

Starting Point: For a subject assumed to be of average ability, find the person's age indicated in the margin, and begin the test with that item. Otherwise consult Part 1 of the Manual for further instructions.

Recording Responses and Errors: Record the subject's response (1, 2, 3, or 4) for each item administered. For each error draw an oblique line through the symbol on the right of the item as illustrated below:

17 pulley . . . . (4) 3 /

(Complete directions are given in Part 1 of the Manual.)

	Plate No.	Word	Key	Response	Errors*
2-6	1	bucket	(1)		
	2	ball	(4)		
	3	car	(2)		
	4	wooden	(2)		
7-9	5	camera	(4)		
	6	envelope	(2)		
	7	circle	(4)		
	8	furniture	(3)		
	9	nostril	(1)		
10-13	10	dangerous	(2)		
	11	furious	(1)		
	12	athlete	(3)		
	13	artist	(3)		
14-18	14	weary	(3)		
	15	socket	(1)		
	16	antler	(3)		
	17	pulley	(4)		
	18	inflated	(3)		
	19	assisting	(1)		
	20	collision	(4)		
	21	floral	(1)		
	22	goblet	(3)		
	23	utensil	(2)		
	24	talon	(3)		
	25	confiding	(3)		
	26	inoculation	(1)		
	27	consuming	(4)		
	28	gable	(4)		
	29	apparition	(2)		
	30	emission	(3)		
	31	ambulation	(2)		
	32	saltation	(4)		

Calculating Raw Score

Ceiling item . . . . . _____

minus errors . . . . . _____

Raw score . . . . . ⌒

*To record errors: make oblique strokes through the geometric figures. Every sixth figure is identical to facilitate the determination of the basal or ceiling.

Appendix 5.

Instructions for contributors for Journal of Clinical Child Psychology

Notes for contributors for Journal of Child Psychology and Psychiatry and Allied Disciplines

Notes for Contributors

General

1. Submission of a paper to the Journal will be held to imply that it represents an original contribution not previously published (except in the form of an abstract or preliminary report); that it is not being considered for publication elsewhere; and that, if accepted by the Journal, it will not be published elsewhere in the same form, in any language, without the consent of the Editors. When submitting a manuscript, authors should state in a covering letter whether they have currently in press, submitted or in preparation any other papers that are based on the same data set, and, if so, provide details for the Editors.

Ethics

2. Authors are reminded that the Journal adheres to the ethics of scientific publication as detailed in the *Ethical principles of psychologists and code of conduct* (American Psychological Association, 1992). These principles also imply that the piecemeal, or fragmented publication of small amounts of data from the same study is not acceptable.

3. Papers should be submitted to the first Editor, care of:

The Journal Secretary,
St Saviour's House,
39/41 Union Street,
London SE1 1SD, U.K.
Telephone: +44 (0)20 7403 7458
Faxline: +44 (0)20 7403 7081 E-Mail: jepp*at*acpp.co.uk

Alternatively, papers may be submitted directly to any of the Corresponding Editors whose addresses are shown on the first page. Upon acceptance of a paper, the author will be asked to transfer copyright to the ACPP.

Manuscript Submission

1. Manuscripts should be typewritten, **double spaced throughout including references and tables**, with wide margins, on good quality A4 paper, using one side of the page only. Sheets should be numbered consecutively. **Four** copies should be sent. The author should retain a copy of the manuscript for personal use. Fax and electronic mail should **not** be used for initial submission of manuscripts.
2. Papers should be concise and written in English in a readily understandable style. Care should be taken to avoid racist or sexist language, and statistical presentation should be clear and unambiguous. The Journal follows the style recommendations given in the *Publication manual of the American Psychological Association* (4th edition, 1994), available from the Order Department, APA, PO Box 2710, Hyattsville, MD 20784, USA.
3. The Journal is **not** able to offer a translation service, but, in order to help authors whose first language is not English, the Editors will be happy to arrange for accepted papers to be prepared for publication in English by a sub-editor.
4. Authors whose papers have been given **final acceptance** are encouraged to submit a copy of the final version on computer disk, together with two hard copies produced using the same file. Instructions for disk submission will be sent to authors along with the acceptance letter. Do **not** send a disk with initial submission of paper.

Layout

1. *Title*: The first page of the manuscript should give the title, name(s) and address(es) of author(s), and an abbreviated title (running head) of up to 80 characters. Specify the author to whom reprint requests should be directed. The covering letter should clearly state the name and address of the person with whom the Editors should correspond, giving also if possible a fax and email address. Authors requesting **masked review** should provide a first page with the title only and adapt the manuscript accordingly.
2. *Abstract*: The abstract should not exceed 300 words.
3. *Acronyms*: In order to aid readers, we encourage authors who are using acronyms for tests or abbreviations not in common usage to provide a list to be printed after the abstract.
4. *Headings*: Original articles and research reports should be set out in the conventional form: Introduction, Materials and Methods, Results, Discussion, and Conclusion. To save space in the Journal, the Method will be printed in smaller typeface. Descriptions of techniques and methods should be given in detail only when they are unfamiliar.
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