IACAPAP Textbook of Child and Adolescent Mental Health

Section F

ANXIETY DISORDERS

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ANXIETY DISORDERS IN CHILDREN AND ADOLESCENTS

NATURE, DEVELOPMENT, TREATMENT AND PREVENTION

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Monsters, Inc® Pixar

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It was not very many years ago that anxiety disorders in children were thought to be relatively rare and low impact conditions. As a result our empirical knowledge about child anxiety is less extensive than it is for the adult conditions. Nevertheless, the past 15 to 20 years have seen a dramatic increase in the number of studies examining child anxiety and we are now building a good understanding of the nature, development and treatment of these disorders. Even more recently interest has started to focus on possible prevention of anxiety and, given the overlap between anxiety and depression as well as the continuity from childhood into adulthood, this work has far-reaching implications for prevention of internalising difficulties right across the lifespan.

Compared with research in the adult realm that tends to split disorders very specifically, within the child and adolescent fields, there is a more common tendency to examine anxiety relatively broadly and in many cases to examine internalising disorders as a whole. Therefore, in the current chapter, I will talk about anxiety disorders in most cases very broadly and consider factors relevant to all the anxiety disorders as a group. This is especially the case for treatment, where most empirically supported psychological packages have tended to include children across the range of anxiety disorders. However, given that other chapters in this book focus on obsessive compulsive disorder, post-traumatic reactions and separation anxiety, I will focus, where possible, more directly on the remaining disorders, generalised anxiety, social anxiety and specific phobias. To reduce repetition, I will generally use the terms child anxiety or childhood anxiety to refer to anxiety in both children and adolescents, unless specific age distinctions are necessary.

DESCRIPTION AND DIAGNOSIS

The core feature of anxiety disorders is *avoidance*. In most cases this includes overt avoidance of specific situations, places, or stimuli, but it may also involve more subtle forms of avoidance such as hesitancy, uncertainty, withdrawal, or ritualised actions. These behaviours are relatively consistent across disorders and the key difference between specific disorders is the trigger for this avoidance. The avoidance is generally accompanied by affective components of fearfulness, distress or shyness. Some children, however, especially younger ones, may have difficulty verbalising these emotions. Anxiousness occurs due to an expectation that some dangerous or negative event is about to occur - in other words an expectation of threat. Therefore, in identifying the anxious child, it is crucial to determine that the avoidance occurs due to an expectation of some sort of threat. For example, two children may say that they do not want to go to school. In one case this appears to be due to the fact that they are having more fun going to the shops with their friends, while in the second case it appears to be due to a belief that other children are making fun of the child. Even though both may superficially seem to be avoiding school, the former case would not reflect anxiety since the behaviour is not motivated by a perceived threat. All of the anxiety disorders will involve an *anticipation of threat*, which may take the form of worry, rumination, anxious anticipation, or negative thoughts. The key differences between disorders lie in the content of these beliefs as will be described below. In addition to the described beliefs, behaviours, and emotions, anxious children will often report a range of associated *physical complaints reflecting heightened arousal*; however, these are rarely specific to a given disorder and hence are rarely diagnostic. Physical symptoms that

Internalising disorders

As opposed to "externalising" or "undercontrolled" disorders" (such as conduct disorder) in which children tend to externalize or act out inner conflict or emotions (e.g., through aggression) – internalizing disorders reflect problems within the self, such as fears, worrying and unhappiness, traditionally subsumed under the rubric of "neuroses", "overcontrolled" or "overinhibited" problems. Children with internalising disorders tend to deal with problems and emotional conflict internally rather than acting them out. Internalizing disorders usually cause more distress to the child than to those around them, the opposite of what happens with externalizing disorders.

Table F.1.1 Core and associated features of the various anxiety disorders.

DISORDER	CORE FEATURES	ASSOCIATED FEATURES
Separation anxiety disorder	Fear or concern that something bad will happen to the child or attachment figure (commonly a parent) when they are separated. As a result of this belief, the child avoids separation from the attachment figure.	• Dreams or nightmares about separation • Refusal to face situations that involve separation, including sleeping away from home, going to school, visiting friends or relatives, staying at home alone or with child minders • Worry about the consequences of separation including fears of being kidnapped or injured or of the attachment figure being hurt, or killed while apart • Physical symptoms when separation is anticipated including, vomiting, diarrhoea, and stomach aches
Generalised anxiety disorder	A tendency to worry about a wide range of negative possibilities, that something bad will happen	• Repeated and extensive worry about several areas such as family finances, friendships, schoolwork, sports performance, self and family health, and minor, daily issues. • Tendency to repeatedly seek reassurance from parents or others about fears. • Avoidance of novelty, negative news, uncertain situations, and making mistakes. • Physical symptoms, sleeplessness and irritability when worried.
Social phobia	Fear and avoidance of social interactions or social performance due to a belief that others will negatively evaluate the child	• Avoidance of a range of social activities or situations including, speaking or performing in front of others, meeting new children, talking to authority figures such as teachers, being the centre of attention in any way, and for teenagers, fears of dating • Worries about negative evaluation from others including that others will think they are unattractive, stupid, unpleasant, overly confident, or odd • A limited number of friends and difficulty making new friends • High levels of self-consciousness or self-focussed attention
Specific phobias	The core feature of specific phobias involves fear and avoidance in response to a range of specific cues, situations, or objects. There is a common belief that the object or situation will lead to personal harm	Some common fears in children include: • Animals such as dogs or birds • Insects or spiders • The dark • Loud noises and especially storms • Clowns, masks, or unusual looking people • Blood, illness, injections
Panic Disorder and agoraphobia*		
Panic Disorder	Experience and fear of unexpected panic attacks, commonly involving several somatic symptoms and fears of dying or going crazy.	• Several somatic symptoms that usually peak relatively quickly and last for a specific period • Symptoms commonly include palpitations, breathlessness, dizziness, trembling, and chest pain • At least some attacks occur unexpectedly or "out of the blue"
Agoraphobia	Agoraphobia involves an additional fear and avoidance of several "agoraphobic" situations, commonly due to a fear of experiencing a panic attack in those situations.	• Avoidance of situations due to fear of symptoms or their consequences • Common agoraphobic situations include places from which quick escape is difficult such as public transport, enclosed spaces, cinemas, hairdressers, or heavy traffic. • There is a common reliance on specific safety cues, commonly a safe attachment figure.

* Both panic disorder and agoraphobia have their mean age of onset in early adulthood and hence are rare in childhood. Only occasional cases occur prior to 15 years and small numbers will begin to present from 15 to 18 years.

are common among anxious children include: headaches, stomach aches, nausea, vomiting, diarrhoea, and muscle tension. In addition, it is common for many anxious children, especially those that worry considerably, to have difficulty with sleep.

As mentioned, the key differences between specific anxiety disorders involve the particular triggers for the anxiousness, the situations that are avoided, and the content of the beliefs, as shown in Table F.1.1. Separation anxiety and school refusal are described in detail in Chapter F.2.

Other anxiety disorders

As mentioned previously, other anxiety disorders are covered in their own chapters and hence will be addressed only briefly here. Children with *obsessive compulsive disorder* (OCD) report repetitive and intrusive thoughts, images or urges, often accompanied by repeated characteristic actions or behaviours with the goal of reducing anxiety. The mental components commonly focus on some expected threat or danger (hence it is an anxiety disorder), although some forms of OCD may fail to report threat expectations and may focus more on a sense of disgust and a belief that certain actions simply "feel right". When a threat expectation does exist, the corresponding rituals are generally aimed at preventing or undoing the expected danger. In children, the picture is complicated by the fact that many children, especially younger ones, are unable to clearly report on their beliefs and motivations. Among children, the most common rituals involve washing and fears of contamination, and checking or ordering and fears of catastrophe if certain actions are not adequately performed.

Post traumatic stress disorder involves a constellation of symptoms of heightened arousal (e.g., jumpiness), intrusions (e.g., distress on reminders of the trauma), detachment (e.g., trouble remembering aspects of the trauma, numbness and flatness), and avoidance that occur following a severe (life threatening) event. Although, sadly, many children in our world experience life threatening events, post traumatic stress disorder is relatively infrequent in childhood (Rapee et al, 2009). Some authors have argued that this is because the criteria are not sensitive to the presentation among children, while others suggest that it may reflect the reduced sense of past and future in children's cognitive development. Post traumatic stress disorder is discussed in detail in Chapter F.4.

School refusal

Although school refusal is not a formal diagnosis in either the DSM or ICD, a brief mention is warranted here due to its common discussion in various circles. There is little doubt that many children do not wish to attend school and in a small percentage of cases they may not attend for lengthy periods. This is often referred to as school refusal. School refusal is not an anxiety disorder and may be motivated by many factors aside from anxiety, but when it occurs, anxiety is a common underlying element. However, anxiety alone is not a sufficient explanation. School refusal involves both a motivation from the child to not attend school (sometimes due to anxiety) combined with a social and usually parental acquiescence to this demand. Naturally, this latter component will vary between societies depending on the laws for school attendance, social norms, and parental needs (such as extreme poverty). However, where laws and norms provide

Social anxiety

It should be noted that socially anxious children are not necessarily poor in social skills. They are commonly ignored or neglected rather than rejected. However, as a result of their anxiety, they may sometimes act in a socially awkward manner and may perform poorly in social situations. For example they may not speak very much or may talk very quietly, they may show poor eye contact, or they may talk in a hesitant and uncertain manner.

an expectation for school attendance (such as in most Western countries), school refusal commonly involves some difficulty within the family or at least one parent. For example, in some cases school nonattendance is partly encouraged by a parent who may wish the child to help with their own needs (e.g., a physical or mental disability) or the parent / child relationship may become pathological due to severe marital difficulties, and so on. In other words, chronic school refusal may reflect a variety of anxiety (or other) difficulties within the child (e.g., fear of the school work, separation anxiety, social fears, bullying, etc) combined with parental or family difficulties and in some cases with social support for nonattendance (see Chapter F.2 for further discussion).

Comorbidity

As mentioned earlier, it is common for discussions of childhood anxiety to focus broadly across anxiety (and sometimes related disorders) rather than focussing on only a single disorder. One of the main reasons for this is the strong overlap between anxiety disorders and between anxiety and other internalising disorders, especially depression. Clinically anxious children rarely meet criteria for only one disorder. Within treatment-seeking populations, around 80% to 90% meet criteria for more than one mental disorder. The majority, up to 75%, meet criteria for more than one anxiety disorder. A further 10% to 30% also meet criteria for an additional mood disorder. Age differences are apparent here – around 30% of treatment-seeking adolescents meet criteria for an additional mood disorder while only around 10% to15% of younger anxious children do so. About 25% of younger treatment-seeking anxious children will also meet criteria for an additional behavioural disorder. Similar figures are found in population-based samples, although the proportion of children with a single anxiety disorder is slightly higher. Nevertheless, even in population based samples, children with anxiety disorders are markedly more likely to have additional anxiety, mood, and behavioural disorders. Interestingly, anxious children do not appear to be at greater risk for substance abuse, most likely reflecting the fact that these children generally obey rules and do not take risks. The overlap between anxiety disorders and alcohol abuse does not appear until late adolescence or early adulthood (Costello et al, 2003).

EPIDEMIOLOGY

Prevalence

Prevalence estimates of child anxiety have been somewhat variable across countries and studies due to many factors including variations in criteria, assessment instruments and sampling. Overall, around 5% of children and adolescents meet criteria for an anxiety disorder during a given period of time in Western populations (Rapee et al, 2009). There is little data available from other cultures, but one study from Puerto Rico has shown similar rates (Canino et al, 2004). In most studies prevalence is highest for specific phobias and moderate for separation anxiety, generalised anxiety and social phobia. Considerably lower rates are reported for obsessive compulsive disorder and the lowest rates are reported for post traumatic stress disorder.

Gender distribution

Anxiety disorders are more common in females than males in the general

population. Most population studies estimate around 1.5-2 times as many females compared to males for most anxiety disorders. There is some evidence that this gender difference appears very early – as young as 5 years of age. In contrast, distributions within treatment-seeking samples in Western societies are more equal and even include slightly more males.

Age of onset

Anxiety disorders are among some of the earliest disorders to appear and most commonly begin by middle childhood to mid adolescence. As will be discussed later, it is common for anxiety disorders to appear within a context of temperamental inhibition (see below) and fearfulness. Hence it is often difficult to determine exactly when the actual anxiety disorder first begins and, to some extent, anxious children can often be said to be anxious from birth. However, estimates of average age of onset (these are averages, disorder can start earlier in individual cases) for the different disorders are as follows:

- Animal phobias – early childhood (around 6-7 years)

- Separation anxiety disorder – early to mid-childhood (around 7-8 years)

- Generalised anxiety disorder – late childhood (around 10-12 years)

- Social anxiety disorder – early adolescence (around 11-13 years)

- Obsessive compulsive disorder – mid adolescence (around 13-15 years)

- Panic disorder – early adulthood (around 22-24 years)

Course

Anxiety disorders are among the most stable forms of psychopathology and show relatively little spontaneous remission. Anxious children are also at increased risk of developing other disorders during adolescence and into adulthood. Longitudinal research has shown that anxious children are at significantly greater risk for anxiety and mood disorders in adolescence and for anxiety, mood, and substance use disorders as well as suicide in adulthood (Last et al, 1997; Pine et al, 1998).

Other demographic features

Interestingly, anxiety in childhood is characterised by very few demographic risk factors. There is some evidence that low socioeconomic status might provide some risk for anxiety but the data are mixed and the degree of risk is small. Similarly, some research has hinted that socially anxious children in particular are more likely to be first born but other research has failed to support this finding. Most other demographic characteristics fail to predict anxiety. Hence anxious children are not characterised by family size, parental marital status, educational attainment or intelligence (Rapee et al, 2009).

ASSESSMENT

Clinical evaluation generally includes a combination of questionnaires, diagnostic interview and behavioural observation. However, in most clinical settings, a diagnostic interview and a small number of questionnaires will be most

appropriate.

Diagnostic interview

Several structured diagnostic interviews exist to assist in determining either DSM or ICD criteria for childhood disorders including anxiety. Most interviews include a large number of questions aimed to tap each of the relevant diagnostic criteria and generally differ in their degree of structure. Some widely used instruments include:

- *Kiddie Schedule for Affective Disorders and Schizophrenia* (K-SADS)

- *Development and Wellbeing Assessment* (DAWBA)

- *Diagnostic Interview Schedule for Children* (DISC)

If the interest is in anxiety more specifically, then the *Anxiety Disorders Interview Schedule for Children* (ADIS-C) (Silverman & Albano, 1996) has a primary focus on these disorders. For very young children, the *Preschool Age Psychiatric Assessment* (PAPA) is a useful instrument (Egger et al, 2006). Most structured interviews involve separate interviews with the parents and the child (at least once the child is 8 years old or so) and the clinician is then faced with the task of combining the information in some way.

Like most disorders of childhood, information from parents and children about anxiety disorders commonly contains several discordant aspects. Clinical judgement and experience needs to be applied to determine which information is more heavily weighted and how best to combine the information (see Chapter A.3 for a detailed discussion of this issue). Anxious children are often thought to "fake good" (Kendall & Chansky, 1991) – in other words, to deny feeling anxious or to provide answers that they think are socially acceptable. However, many parents are also anxious (discussed below) and in some cases will exaggerate the child's difficulties due to their own distress. Hence, the interviewer needs to obtain sufficient detail to allow a judgement about which is the most accurate report and which aspects of the information may be inaccurate for various reasons.

Clinically, distinguishing between specific disorders can be difficult. As described above, it is important to determine the basic motivation behind particular behaviours in order to identify the relevant diagnosis. For example, young children who have a tantrum when their parents plan to go out may be doing so due to the attention and subsequent rewards they receive, or to fear of being separated. Clinically, once all behaviours, motivations, and diagnostic criteria have been assessed and it has been determined that a child meets criteria for two (or more) clearly distinct disorders, it is generally useful to determine which of the disorders is *primary* or *principal*. Most authors conceptualise the *principal disorder* as the one that produces the greatest impact and interference in the child's life. Hence this disorder is usually the first focus in therapy. Most empirical evaluations of treatments for child anxiety are based on children who meet criteria for anxiety disorders as their principal disorder. In some cases however, it may be more important to determine which disorder appears to be the *underlying* or *causal* problem. For example, a child suffering depression, loneliness and victimisation because of their social anxiety may respond best if the social anxiety is treated first, regardless of whether it is the primary condition. In some cases, a particular

problem may be expected to interfere with treatment response and may therefore require initial attention, even if it is not the principal disorder. For example, a child whose anxiety appears to be most interfering but whose additional depression results in low motivation may need treatment addressed to the depression and motivation before they will be able to engage in treatment for the anxiety.

Questionnaire assessment of child anxiety

The severity of anxiety or extent of anxiety symptomatology can be measured using several well developed questionnaires. Most of these measures have demonstrated good psychometric properties from around age 8 or 9 years and can be used up to middle or late adolescence. From middle adolescence, adult measures of anxiety are usually suitable. Very few measures have been developed for younger children.

A few questionnaires contain several subscales that each tap diagnostic-like constructs such as separation anxiety, social anxiety or generalised anxiety. Most of these questionnaires have parallel versions for the parent and child. These include:

- *Spence Children's Anxiety Scale* (SCAS) (free of charge)
- *Screen for Anxiety and Related Disorders* (SCARED)
- *Multidimensional Anxiety Scale for Children* (MASC)

A similar measure has recently been developed for preschool-aged children, to be completed by their parents only – the *Preschool Anxiety Scale, Revised* (PAS-R) (free of charge and available in several languages).

Several older measures aim to assess the overall degree of anxiousness more broadly. These include:

- *Revised Children's Manifest Anxiety Scale* (RCMAS)
- *State Trait Anxiety Inventory for Children* (STAIC)
- *Beck Anxiety Inventory for Youth*

A similar measure assessing internalising symptomatology completed by parents has also been developed for children at preschool age – *Children's Moods, Fears and Worries* (Bayer et al, 2006).

In some circumstances, more specific and detailed assessment of a particular form of anxiety may be required. In these cases, a few measures tap into specific aspects of anxiety including:

- *Fear Survey Schedule for Children Revised* (FSSCR)
- *Social Phobia and Anxiety Inventory for Children* (SPAIC)
- *Social Anxiety Scale for Children - Revised* (SASC-R)
- *Children's Anxiety Sensitivity Index* (CASI) (Silverman et al, 1991)

Finally, a few measures from our own centre may be of value since they tap relevant aspects related to anxiety disorders. The *Children's Automatic Thoughts Scale (*CATS) is designed to assess specific beliefs experienced by children and adolescents with a variety of disorders. Two of the subscales are especially relevant to anxiety: beliefs related to social threat and physical threat. The remaining subscales assess beliefs related to personal failure and hostility. The *School Anxiety*

Click on the picture to view the Centre for Emotional Health's website from where the CATS, SAS-TR, and CALIS, as well as the PASR can be downloaded free of charge. Some of these scales are available in languages other than English.

Scale - Teacher Report (SAS-TR) provides a measure of children's anxiety that can be completed by the classroom teacher. This measure therefore provides an additional source of information that can flesh out a broader clinical picture of the anxious child. Finally, the *Children's Anxiety Life Interference Scale* (CALIS) provides two parallel measures (one reported by the child and the other by his/her parents) that assess the extent to which the child's anxiety impacts on the child's and family's life.

RISK AND MAINTAINING FACTORS

Family transmission

Anxiety runs in families. First degree relatives of people with anxiety disorders are at significantly increased risk to also have anxiety as well as mood disorders. The same is true more specifically for anxiety in children and adolescents. Anxious children are considerably more likely to have parents with anxiety disorders and adults with anxiety disorders are more likely to have anxious children (Rapee et al, 2009). A similar relationship occurs more generally for temperament that is related to anxiety (see below). Adults with anxiety disorders are more likely to have children who are highly inhibited and inhibited children are more likely to have parents with anxiety and mood disorders (Rosenbaum et al, 1993).

One important finding is that family transmission of anxiety seems to show some specificity. In other words, several studies have shown that people with a particular anxiety disorder (e.g., social phobia) are more likely to have first degree relatives with that same disorder (social phobia) than with other anxiety disorders. This is different from research on genetic factors that has not shown specificity (see below). Of course family transmission can reflect both genetic and environmental influences, so it is tempting to speculate that genetic transmission confers a broad, general risk, while family environment may shape that risk into specific manifestations.

Genetic factors

There is little doubt that anxiety disorders are heritable. Best estimates suggest that around 40% of the variance in anxiety symptoms and in diagnoses of anxiety disorder is mediated by genetic factors. This estimate is even higher if one looks at stability of anxiety over time. Slightly less research, but with similar findings, has been done on anxiety specifically during the childhood years. Twin studies of anxiety in children indicate that around 30% to 40% of the variance in symptoms and disorders can be attributed to heritability (Gregory & Eley, 2007). There is some evidence (albeit with limitations) that heritability estimates for temperamental risk for anxiety (e.g., inhibition) is slightly higher (Rapee & Coplan, 2010). As mentioned above, genetic risk across anxiety disorders appears to be largely general and seems to primarily load on a very broad factor such as general neuroticism (Gregory & Eley, 2007).

Work on specific genes underlying anxiety disorders is less extensive and, to date, no evidence exists linking any individual gene specifically to anxiety. Many candidates have been explored; the most widely studied being the promoter region of the serotonin transporter gene (5HTTLPR). However, polymorphisms on this gene have been associated with different disorders and it is unlikely that it would

Jerome Kagan, professor of psychology at Harvard University, is one of the scholars who contributed to developing the concept of temperament, which he defined as stable behavioural and emotional reactions that appear early in life. He described two types of temperament: inhibited and uninhibited. The former applies to children who are shy, timid, socially withdrawn and fearful, while the latter refers to children who are outgoing, sociable and daring.

play a specific role in anxiety. In fact, one theory states that having two short alleles on the 5HTT gene may increase an individual's overall responsiveness to environmental events (both positive and negative) (Belsky et al, 2009).

Temperamental factors

Temperamental risk for anxiety is probably the best studied and most clearly established risk factor (Fox et al, 2005; Rapee et al, 2009). A variety of similar temperaments have been associated with child anxiety including: behavioural inhibition, withdrawal, shyness and fearfulness. I will refer to these various temperaments in this section under the general term *inhibition*. Extensive research has shown that very young children who are identified as high on inhibition are at greater risk for later anxiety disorders. As described above, research has also linked inhibition with anxiety disorders in first degree relatives. The most common assessment of inhibition occurs in children from around 2-5 years of age. This may be done via questionnaires or direct observation. Common features of inhibition include:

- Withdrawal in the face of novelty
- Slowness to warm up to strangers or peers
- Lack of smiling
- Close proximity to an attachment figure
- Lack of talk
- Limited eye contact or "coy" eye gaze
- Unwillingness to explore new situations.

> It seems that fear of strangers can be increased through an interaction between the infant's temperament and the mother's overt indicators of fear.

Children who show these characteristics during preschool age are 2-4 times more likely to meet criteria for anxiety disorders by middle childhood and this increased risk has been shown to continue at least into adolescence (Fox et al, 2005). Some evidence has also indicated that infants (aged 3-6 months) who show high levels of arousal and emotionality are at greater risk to show high inhibition by 2-5 years. Therefore, it seems to be possible to identify increased risk for anxiety from a few months of age (Kagan & Snidman, 1991).

Theoretically the main complication with this research is the extensive overlap between the constructs of inhibition and anxiety disorders. Thus one could argue that inhibition is simply a less clear version or an early manifestation of an anxiety disorder. There is some evidence that inhibition and disorder have some unique features and thereby represent distinct constructs, but the issue is far from settled (Rapee & Coplan, 2010).

Parent and family factors

Given the evidence for the transmission of anxiety within families described above, it has commonly been assumed that parents and the family environment must contribute to the development of anxiety disorders. However, evidence has been difficult to obtain and data have not been entirely consistent. The most extensive research has focussed on parenting and parent-child interactions.

There is now little doubt that the parenting of anxious children is characterised by *overprotection*, *intrusiveness* and, to a lesser extent, *negativity* (McLeod et al, 2007). Whether this relationship is causal is much harder to determine and, to date, there has been very little examination of this issue. Theories

argue that the parent-child relationship is likely to reflect cyclical interactions. That is, inhibited children are likely to elicit overprotection from their parents and, in turn, overprotective parenting is likely to lead to further anxiety (Hudson & Rapee, 2004; Rubin et al, 2009). Few longitudinal studies have addressed this relationship, but at least some evidence is consistent with this theory (Edwards et al, 2010). There is also some evidence that an interaction between the serotonin transporter gene and parenting predicts later anxiety in young children (Fox et al, 2005).

It has often been assumed that anxious parents increase risk for anxiety in their children by modelling their own fears and coping strategies. This theory, however, has received very little examination. The main research has come from laboratory studies with very young children. Research has shown that children aged around 6-18 months can learn to fear and avoid a novel stimulus by observing their mothers acting in a fearful manner. More importantly, socially anxious mothers have been shown to transmit a fear of strangers to their infants in this way, and the extent of fear that the infant develops depends partly on the pre-existing level of inhibited temperament that the infant displays (de Rosnay et al, 2006). Thus it seems that fear of strangers can be increased through an interaction between the infant's temperament and the mother's overt indications of fear. Among older children it has been shown that verbally transmitted information about danger can increase fear of particular cues. For example, when children are presented with information about a novel cue that suggests the cue might be dangerous, they show increases in fear, physiological arousal, threat beliefs, and avoidance of the cue that can last for several months (Field, 2006).

Finally, a key question is whether disturbed family environments play a role in the development of child anxiety. There has been a wealth of longitudinal research examining the long term impact of family distress and violence, parent divorce or separation, and sexual and physical abuse, although little of this work has focussed clearly on anxiety disorders. Overall, it appears that sexual abuse – and to a lesser extent physical abuse and family violence – can increase anxiousness in children. However, this increase is likely to be temporary and it is not clear whether these factors contribute significantly to the development of longer-term anxiety disorders. More importantly, it is clear that these factors are relatively non-specific and increase risk for a wide variety of child psychopathology, probably least of all anxiety disorders (Rapee, in press).

Life events

Although there has been a large body of research examining the role of negative life events in the onset of adult anxiety disorders (mostly agoraphobia), there has been very little work looking at life events in childhood anxiety. This may be because child anxiety often develops in a background of inhibited temperament and a clear and sudden onset to the disorder is relatively rare. What research has been conducted suggests that anxious children do report a greater number and impact of negative life events than do children without anxiety disorders. While it is possible that this difference reflects cognitive and reporting biases, at least some work has demonstrated this difference using interviews with parents and identifying corroborating evidence (Allen et al, 2008). Nevertheless, demonstrating that anxious children have more negative life events than non-anxious children

Click on the picture to hear Eli R Lebowitz PhD talk about CBT for childhood anxiety disorders (13:14 minutes)

does not mean that these events necessarily cause or trigger their anxiety. Indeed the data suggest that the greatest difference is found on so-called "dependent" life events. Dependent events are ones that might be the result of the child's behaviour (e.g., doing badly in a test might be a result of the child not studying). Thus it is very possible that child anxiety leads to more negative life events, perhaps due to the worry and avoidance associated with the anxiety. Of course it is also possible that this increased stress, in turn, helps to maintain and even increase the anxiety.

One specific form of life event that has received particular attention is *bullying and teasing*. There is considerable evidence that anxious children are more likely to be teased and bullied than non-anxious children and that they are often neglected or even rejected by their peers (Grills & Ollendick, 2002). Once again the direction of causation is unknown but it is very likely that anxious children elicit teasing from others due to their behaviours; in turn, it is likely that teasing will further enhance their anxiety.

Cognitive biases

Anxious children report heightened threat beliefs and expectations. To some extent this is a reflection of the diagnosis, but it is also argued to represent a core maintaining feature. Although there is considerable overlap, to some extent the threat expectancies are specific. That is, socially phobic children are more likely to have increased expectancies for social threat (e.g., "other kids won't like me"), children with separation anxiety will have increased expectancies for physical threat (e.g., "my parents will get hurt"), and so on. Evidence suggests that these threat beliefs are greater among anxious children than among children with other psychopathology and that they decrease with successful treatment (Schniering & Lyneham, 2007). Whether they are causally related to the onset of anxiety or simply reflect the anxiousness is not clear.

More recent research has also begun to focus extensively on the ways in which anxious children process threatening information (Hadwin et al, 2006). As has been shown in adults, anxious children have both a bias in attention toward threat and a bias to interpret ambiguous information in a threat-consistent manner. Some research has shown that these biases decrease with successful treatment.

TREATMENT

Psychopharmacology

Pharmacological management of anxiety in children has typically focussed on the use of selective serotonin reuptake inhibitors (SSRIs). Some earlier research utilising tricyclic antidepressants focussed on OCD and is covered in Chapter F.3. Several studies have demonstrated significant efficacy of SSRIs such as fluoxetine, sertraline, and paroxetine in the management of broad-based anxiety disorders, although most studies have primarily focussed on treatment of OCD (Ipser et al, 2009). Little difference has been shown between specific agents, although paroxetine is not recommended in this age group. Treatment has generally lasted 10-15 weeks. Outcome results indicate that 50% to 60% of children are considered treatment responders at the end of treatment compared with around 30% of those on placebo. Unfortunately, the longer term maintenance of gains has rarely been investigated, but there is some hint in the literature that medication effects may

Results indicate that 50% to 60% of children are considered diagnosis-free at the end of treatment (skills-based or CBT programs) and this figure typically increases to 70%-80% up to 12 months following the end of treatment

level off after around 8 weeks (Ipser et al, 2009). Adverse medication events are relatively infrequent but do occur significantly and up to 7% of anxious children on SSRIs discontinue due to side effects. Suicidality needs to be monitored in all young people taking an SSRI (for more details on pharmacological treatment see Chapter A.8 and Table A.8.1).

Skills-based programs

Most evidence-based psychological treatment for childhood anxiety falls under the broad category of cognitive-behavioural or skills-based treatment. The fundamental basis is teaching the child (and sometimes the parents) specific skills to help manage the child's anxiety. Most treatments comprise comprehensive packages or combinations of techniques. Specific treatment techniques include:

- Psychoeducation
- Relaxation
- *In vivo* or imaginal exposure
- Contingency management
- Parent training
- Cognitive restructuring
- Social skills and assertiveness training

Treatment programs typically last 8-15 weeks of around 1-2 hours per session and have been delivered in either group format or individually. Results indicate that 50% to 60% of children are considered diagnosis-free at the end of treatment and this figure typically increases to 70%-80% up to 12 months following the end of treatment (James et al, 2006). A few studies have indicated maintenance of treatment gains up to 6-8 years following treatment (e.g., Kendall et al, 2004).

A number of studies have tried to identify factors that may influence treatment efficacy. There is little evidence that outcome is different when treatment

Table F.1.2 Sessions and components of the *Cool Kids* program.

Session	Coverage - Child	Coverage - Parents
1	Psychoeducation	Psychoeducation and treatment rationale
2	Cognitive restructuring	Cognitive restructuring for both parent and child
3	Cognitive restructuring practice	Cognitive restructuring practice Child management skills
4	In vivo exposure and development of hierarchies	In vivo exposure and development of hierarchies
5	Dealing with difficulties in exposure	Dealing with difficulties in exposure
6	Practice exposure and cognitive restructuring	Practice exposure, cognitive restructuring and child management
7	Introduce assertiveness and social skills	Ways to increase assertiveness and social skills
8	Teasing and bullying	Teasing and bullying
9	Practice and review	Practice and review
10	Practice, review and relapse prevention	Practice, review and relapse prevention

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Table F.1.3 Treating childhood anxiety disorders in practice

- *First line treatment*: Low-intensity treatment – including use of books (bibliotherapy), CD's or internet programs (e-therapy). May not be recommended in cases of highly urgent need (e.g., chronic school refusal) or high risk (e.g., suicidal ideation), or in cases of especially poor parent-child relationships

- *If unwilling to attempt low intensity* – then low-intensity is not recommended – *or patient does not improve* with low-intensity treatment, suggest traditional CBT or skills-based treatment with a qualified practitioner in all cases, with the exception of patients who refuse skills-based treatment or CBT is not available

- *If a patient does not improve* after a treatment program delivered by a skilful clinician for long enough (12-20 weeks), refuses skills-based treatment or CBT is not available, consider medication

- When patients are treated with *medication* – alone or in combination with CBT (multimodal treatment) – keep in mind that:

    - No medication is approved by the US Food and Drug Administration (FDA) for any anxiety disorder in patients younger than 6 years of age (see Table A.8.1). Overall, avoid medication in younger children (i.e., younger than 10 years of age).

    - While there is some evidence of effectiveness for some SSRIs for several anxiety disorders (e.g., OCD, social phobia, generalised anxiety) (see Table A.8.1), they are formally approved by the FDA in the US only for the treatment of OCD (that is, they are used "off label" for anxiety disorders other than OCD). This may not be the case in other countries.

    - Avoid using benzodiazepines. While benzodiazepines reduce anxiety in the short term, there is no evidence they are effective treating the disorder. They have more side effects in young people and potential for dependence.

    - Monitor side effects, particularly suicidality.

    - Review regularly, initially weekly, later on monthly.

    - Monitor response using an appropriate rating scale and switch to another SSRI if there is no improvement or, if not already tried, add CBT.

Click on the picture to hear Professor Rapee talk about anxiety disorders (06:08)

is delivered in either a group or individual format. A more important issue that has received some attention is the extent to which it is necessary to include parents and to teach them specific skills in treatment. Evidence on this issue has been mixed but generally indicates some, although small, benefits of including parents as active participants in the treatment (Creswell & Cartwright-Hatton, 2007). However, studies that have addressed this issue have rarely taken the age of the child into account. As might be expected, the hints in the literature suggest that including parents in treatment is likely to be relatively important in the treatment of younger children, but shows little benefit in the treatment of adolescents (Barrett et al, 1996).

Another relevant question is the influence of comorbid diagnoses on treatment effects. Surprisingly, the majority of research to date has failed to show that treatment response is worse for anxious children with comorbid disorders. In other words, anxious children seem to respond equally well to skills-based treatment packages even if they have additional difficulties with anxiety, depression, or externalising problems (Ollendick et al, 2008). Having said that, there is mixed evidence for depression; a few studies have suggested that comorbid depression may reduce treatment response (Rapee et al, 2009). A recent study from our own clinic

has shed a little more light on this issue. Based on our data, it appears that having a comorbid disorder does not influence the degree of change across treatment but does influence the endpoint. Because children with comorbid disorders (especially comorbid externalising disorders and depression) typically have more severe anxiety to begin with, the point they reach at the end of treatment is generally not as good as children without comorbid disorders, although the degree of change across treatment is very similar. Some recent research has also begun to show that children with high functioning autism and comorbid anxiety also respond very well to treatment of their anxiety (Moree & Davis, 2010).

Few other predictors of treatment response have been found. There have been hints that parent psychopathology, both parent anxiety and depression, predicts worse outcome, but some studies have failed to show this effect. Other factors such as marital status, parent education, and family size appear to have little effect. One very recent study showed that genetic status might predict treatment response. Children with short alleles on the 5HTTLPR gene showed a better response to treatment at follow-up than did children with two long alleles (Eley et al, in press). Naturally, this very interesting finding needs replication.

A program example: *Cool Kids*

There are several skills-based treatment packages for the management of anxiety disorders in young people and most contain very similar components. To provide an example, I will describe our own program, *Cool Kids. Cool Kids* is a manualised treatment program for anxious young people aged 7-17 years. There is a detailed set of guidelines for therapists that is supported by workbooks for the parent and the young person. Different workbooks and a slightly different structure are used for younger (7-12) and older (13-17) children. There are also modified versions for use with children with autism, for adolescents with comorbid depression, and for families who are unable to attend a clinic for face-to-face treatment.

Treatment using *Cool Kids* generally comprises 10 sessions over 12 weeks. Parents are an integral component and are seen at all sessions when treatment is with children but have a slightly reduced involvement when treatment is with adolescents. The program can be delivered in either group or individual format. Sessions typically last 60 minutes when delivered individually and 120 minutes when delivered as a group. There are separate components covered with children and parents. The sessions and components of *Cool Kids* are shown in Table F.1.2.

Overall efficacy for *Cool Kids* is good and, as described above, there are few negative predictors. We generally include any child with an anxiety disorder as their principal (most interfering) disorder, including children with OCD, and we rarely exclude children due to comorbidity. Our data indicate few differences in outcome. In fact the only group who seems to respond slightly worse to treatment is young people with social phobia. Therapists with training in clinical psychology, experience in working with young people, and skills in the delivery of cognitive behavioural treatments are able to run the program; training workshops are regularly conducted through our centre. At present, manuals have been translated into several languages including Spanish, Korean, Chinese, Turkish, and some Scandinavian languages.

PREVENTION AND EARLY INTERVENTION

Given the growing knowledge of risk factors for the development of child anxiety, interest has begun to rise into the possibility of very early intervention and prevention. In addition, growing recognition of the public health implications of psychopathology has increased the realisation that a large proportion of children who are high in anxiousness but do not meet criteria for an actual disorder may nevertheless be suffering and endure restrictions on their lives. As a result, recent work has begun to evaluate programs for prevention and early intervention of anxiety (Lyneham & Rapee, in press). These programs have covered all levels of intervention: universal, selective and indicated.

Several large trials have demonstrated the efficacy of anxiety management programs applied universally across sub-populations obtained via schools. These programs typically cover similar skills to those found in clinical packages including education, relaxation, cognitive restructuring, and *in-vivo* exposure; often they include additional skills such as communication and problem-solving. Therefore, they may be better thought of as *broad emotional health programs* that aim to teach young people ways of managing all distressing emotions. Results have been slightly inconsistent, but have mostly indicated reductions in anxiety, usually with small effect sizes (Bayer et al, 2009). Given that these are universal programs and are not targeting high risk groups, large effects are not expected and even small effects across an entire population are meaningful.

Selective anxiety programs refer to those that target children who report moderate to high symptoms of anxiety but do not necessarily meet criteria for a disorder. The presumption is that these children are at increased risk to develop disorders in the future and hence teaching them anxiety management skills provides a clear method of prevention. However, even if they do not go on to develop anxiety disorders, the low to moderate distress and life interference experienced by these children makes them a valid target for skills training, especially given that very few have sought professional help. As with universal programs, the majority of these interventions have used school-based populations. There are many methods of selecting children with high levels of anxiety, but most trials so far have used a combination of student self report and teacher report. Once again, the content of these programs is very similar (or identical) to that of clinical treatment programs. Results have mostly indicated significant reductions in anxiety following intervention, generally with moderate effect sizes (Mifsud & Rapee, 2005). Some research has shown continued benefits up to two years following intervention (Dadds et al, 1999).

Finally, a few studies have begun to investigate *indicated* programs for the prevention of anxiety – i.e., programs aimed at children scoring high on anxiety risk factors. Targeted children have most commonly been selected on the basis of high levels of temperamental inhibition, but high parent anxiety has also been used to identify relevant children. In the only longer term study to date, we developed a modified version of *Cool Kids* called *Cool Little Kids*. The program is aimed at parents of inhibited preschool-aged children and comprises 6 group sessions. Components are mostly aimed at reducing parent overprotection and encouraging in-vivo exposure for the children. By age 7, children whose parents attended the program showed significantly lower levels of anxiety symptoms and fewer anxiety

diagnoses compared to children whose parents received no training (Rapee et al, 2010).

CONCLUSION

The past two decades have seen a tremendous expansion in our knowledge of the development and management of childhood anxiety disorders. Many key issues remain to be evaluated and we still have a long way to go but we are currently at a point where anxious children are recognised and can be thoroughly assessed. We have treatments that work for the majority of patients and programs are beginning to prevent the development of anxiety. Several promising areas of research are just starting to grow and will hopefully provide further advances in the coming years. These include:

- Better understanding of risk factors for anxiety through longitudinal research

- Closer evaluation of gene-environment interactions in the development of anxiety

- More understanding of peer interactions in anxiety and their influence on its development

- Better methods of disseminating treatments, for example through internet and distance (tele-health) programs

- Evaluation of novel improvements to treatment such as the use of memory consolidation agents or cognitive bias modification.

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