

# Methods and approaches to improving the emotional health and well being of children

A briefing paper concerning interventions to prevent  
internalising disorders

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# Key points

- Attempts to improve the emotional health and wellbeing of children have generally overlooked the needs of children who are anxious or show signs of somatic symptoms, despite the wide prevalence of these problems and the distress they cause.
- Estimates of prevalence levels for diagnosed anxiety disorders range from 3-7% for children of primary school age and 2-5% for depressive disorders. However around a third of all children have problems with anxiety below disorder level and well over half of 11 year olds have physical symptoms such as headaches or stomach aches that cause discomfort.
- Somatisation, anxiety and depression are separate disorders but they often occur in the same people. This comorbidity means that these conditions sometimes occur alone, sometimes concurrently or successively. Between a third and a half of children with somatic symptoms are believed to have problems with either anxiety or depression, and around 17% of children with anxiety also have depression.
- These problems can prevent children achieving their academic potential and limit their interactions with other children and with their teachers. If untreated, there is an increased risk of more serious problems developing during adolescence and of psychiatric disorders in adulthood.
- There are a number of common risk factors for these problems which include genetic and biological factors, psychosocial factors, such as stressful events or environments, and family influences. These risk factors tend not to be mutually exclusive, but operate in complex interactions and associations. For example, heritable characteristics can be significantly modified by environmental factors.
- Children who take a proactive stance and have confidence in their ability to solve or adjust to problems appear to cope well with their somatic symptoms and anxieties. Those who adopt avoidance strategies appear to be at greatest risk of developing more serious somatic symptoms and anxiety problems.
- Cognitive Behaviour Therapy (CBT) has proved effective in treating children with these disorders, by helping them to improve their social competence, develop successful coping skills and to manage their physical symptoms.
- Over the past 15 years, school-based intervention programmes to prevent anxiety and depression have been developed in the USA and Australia. They show some positive results in reducing the prevalence of anxiety and depression. No comparable programmes specifically to prevent somatic symptoms have been identified.

# Background

The promotion of mental and emotional health and wellbeing of children has become an area for increasing attention. A recent UNICEF report ranked the UK in the bottom third of economically advanced countries for child well-being. The recently published first interim report from the Primary Review (2007) identified concerns about the 'pervasive anxiety' which characterises children's lives, brought about in part by the emphasis on national testing of children in primary school, and also through increasing attention to wider concerns about violence or crime in neighbourhood communities, and world issues such as global warming and world poverty.

Emotional wellbeing impacts on all aspects of human behaviour and development, including mental and physical health, education and skill development, social competence, and the establishment of positive social relationships. Until recently the emphasis for preventative work around children's wellbeing has tended to focus on aspects of children's behaviour, particularly conduct disorders and other behaviours which cause disruption in school or in the community. There has been less attention to internalizing problems such as somatisation, anxiety, and childhood depression. However the problems associated with anxiety or stress have important implications for daily functioning and for longer term outcomes, since they can lead to feelings of physical illness such as headaches, stomach aches or nausea, and reluctance to engage in social activities.

Many children with these problems do not attract intervention in terms of treatment or help, because their distress and impairment tends not to be noticed until its seriousness impacts on their daily lives, for example by refusal to attend school. Even below this level of seriousness, symptoms cause individual distress and can have implications for school attendance and performance.

Certainly they impacts significantly on emotional and social competence in inhibiting learning, forming relationships, solving everyday problems and adapting to the complex demands of growth and development. Children may be unable to complete school tasks because they are too worried about not doing well, and may have problems making friends and joining in activities with their peers because of concerns about how and what people think of them. Consequently these children may not perform academically as well as they should and, left untreated, may be at greater risk of similar or more serious psychological disorders in adolescence and early adulthood, leading to more individual distress and the need for costly intervention.

This paper presents a summary of the prevalence of somatic, anxiety and depressive disorders in children and of the known risk and protective factors associated with these problems. It then reviews the evidence for successful treatments and prevention programmes, focusing on psychological therapies rather than pharmacological interventions, with particular emphasis on interventions for children of primary school age.

## Methods

The review of data sources for this briefing document formed part of a wider literature review of somatisation and anxiety disorders in childhood and interventions for treatment and prevention. ASSIA, PsycINFO, Pubmed and Cochrane Databases were searched from 1997 until the present, and key journals hand searched for further references. Nearly forty references identified in these searches were reviews, including systematic and meta analyses, many published in the past five years. These provided a particularly relevant database from which to identify preventative and treatment interventions. These systematic and meta-analytic reviews were then searched for additional studies not previously identified by database and journal searches.

## Prevalence and course of somatic symptoms

The term somatic symptoms refers to any physical symptoms, whether caused by a somatic illness or not, whilst somatic illness is usually applied to symptoms that have a diagnosed underlying organic cause, for example asthma. Somatisation refers to physical symptoms that are thought to be either caused by stress or strongly influenced by psychological factors. Studies in this area, particularly those of non-clinical populations, do not always clarify whether an organic illness is present or not, or whether there is evidence that symptoms are related to stress.

Research suggests that the experience of physical or somatic symptoms is quite common in children. The most commonly reported complaints are headaches and abdominal aches or pains, but symptoms may also include back pain, general or chronic fatigue, sore or aching muscles, dizziness or nausea.

Overall the presence of somatic problems is high, with some studies suggesting that between half and three quarters of all children in their early teens report that they regularly experience at least one symptom (Bruusgaard et al. 2000; Vervoort et al 2006). Recent studies in the UK have reported that by age six, 12 % of children have recurrent abdominal pains (Ramchandani et al. 2007), and a survey (Sweeting & West 1998) of 11 year olds found that around 60% reported having stomach aches and 50% reported headache in the previous month. Surveys and longitudinal studies from other countries indicate very similar results in terms of prevalence, although direct comparison of data across studies is often complicated by the use of different measures and methods of collection.

Several studies point to a recent increase in prevalence of somatic symptoms. A Finnish study reported a fivefold increase in headache prevalence over 30 years since 1974, and a USA study indicates a 60% increase in recurrent abdominal pain (RAP) in 7-9 year olds. Although increased stress may be a partial explanation for the rise, several environmental factors have been suggested which might also play a part, for example, more time spent in sedentary activities such as with a computer, the higher consumption of soft drinks and diet (Anttila et al. 2006; Malaty et al. 2007). To some extent this increase may be a reflection of

the rises that have occurred in psychosocial disorders among young people. A comparison of three British cohort studies indicates that whilst rates of emotional problems remained stable between 1974 and 1986 they increased between 1986 and 1999 (Collishaw et al. 2004)

As they get older and start school, children report having more of these symptoms. Abdominal pain is the most common symptom in early childhood, whereas headache and limb pains tend to become more common in later childhood and early adolescence. Older children tend to report that they experience several symptoms. These changes may be partly a consequence of physiological changes that occur with age or of developments in children's verbal skills and ability to express their symptoms more clearly. A further explanation may be that with increasing age, children find themselves exposed to more stressing events and situations.

The evidence suggests that gender differences in the prevalence of symptoms increase with age. Whilst at younger ages, boys and girls report similar experiences of problems, girls report more as they get older (Lundqvist et al. 2006). Biological and psychosocial factors have been suggested to account for this difference, with menstruation and hormonal changes influencing girls' experiences, while boys may be more socially conditioned not to express problems relating to physical health (Petersen et al. 2006).

Problems with sleeping appear to be associated with somatic disorders, with children having difficulty getting to sleep, staying asleep and having more bad dreams, which in turn can have implications for school attendance and performance (Haim et al. 2004; Miller et al. 2003).

Longitudinal studies offer strong evidence that children with somatic symptoms are likely to continue to experience these into adulthood and are at higher risk of developing psychiatric disorders (Hotopf et al. 1998). Children with RAP are known to be at risk of continued abdominal pain and irritable bowel syndrome (IBS) in adolescence and early adulthood, along with other symptoms such as chronic headache (Walker et al. 1998).

## Prevalence and course of anxiety

Anxiety is a subjective sense of worry, apprehension, fear and distress. Whilst it can be regarded as normal and part of the natural developmental process of childhood to have these feelings on occasion, it is important to distinguish between what are normal, often transient, levels of anxiety, and unhealthy or pathologic levels of anxiety.

Anxiety has been described as having three distinct components (Lang 1971): a physiological component which includes the physical responses of racing heartbeat, breathlessness and a range of somatic type symptoms, a cognitive component of negative thoughts about failure, thinking that things will turn out badly or that the worst will happen, and a third, behavioural component which includes avoidance strategies or refusals to participate.

Studies of children and adolescents in community populations suggest that anxiety is a widespread condition which varies from mild symptoms to a serious disorder requiring clinical intervention. Estimates of prevalence levels for diagnosed anxiety disorders range from 3-7% for children of primary school age (Anderson et al. 1987; Meltzer et al. 2004). Studies which have assessed the prevalence of anxiety at a level that causes children a more modest degree of impairment in their daily life, below the level to be diagnosed as a disorder, estimate over a third of children may suffer from mild to moderate symptoms (Chavira et al. 2004).

Problems with anxiety tend to follow a developmental course, influenced by age and cognitive ability, with different types of anxiety disorders emerging during specific developmental stages. At around age six, about 11% of children experience specific phobia, a fear of some specific object or situation, and 3% develop separation anxiety, often characterised by a reluctance to attend school or an excessive worry about members of the family suffering harm. Generalised anxiety disorder tends to develop through ages 6-11 years, and is characterised by increased self consciousness and excessive worry about events and situations. Social phobia generally begins to emerge as children approach their teens, as they experience more situations where they feel that they are being evaluated by other people.

A number of studies point to gender differences in the prevalence of anxiety problems with girls more likely to experience anxiety than boys. For example, by age 6, girls appear twice as likely as boys to have experienced an anxiety disorder (Lewinsohn et al. 1998). Separation anxiety may be more common in girls than boys, and over anxious and phobic disorders more common in boys (Walsh et al. 2004).

Children with anxiety problems are at increased risk of experiencing social and academic difficulties (Wood 2006), and if not successfully treated, of developing mood disorders, behavioural problems and substance misuse problems (Costello et al. 2003). Anxiety problems in childhood may be precursors of later more serious problems in adolescence and adulthood, either for further anxiety disorders, such as panic disorder and agoraphobia in adulthood, (Silove et al. 1995), or for major depressive disorder (Kovacs et al. 1989).

## Prevalence and course of depression

Some of the symptoms of depression, such as tiredness, aches and pains as well as withdrawal socially, are very similar to those of anxiety and somatic symptoms. However, depression is accompanied by low mood which usually manifests as sadness or hopelessness in adults, but in children and adolescents may result in irritability or difficult behaviour.

Until relatively recently it was argued that young children did not develop depression. Anxiety and depression were believed to be indistinguishable in younger children, with adolescence the age at which the risk of depression would become apparent (Cole et al.

1997). Survey and longitudinal studies, however, indicate that depressive disorders occur, even in pre-school children. Prevalence levels for pre-teen children range from 2-5%, but during the early teenage years there tends to be a rapid rise, from around 4% at age 11, to 12% by age 15 with further substantial rises from age 15 to 18 (Sweeting & West 1998; Hankin et al. 1998).

There is little difference between the sexes in the prevalence of depression in the pre-teenage years, with rates for girls and boys either similar, or even perhaps higher for boys, at age 11. From then on into adulthood, however, the rise for girls is more substantial than for boys, with prevalence increasing from 4% at age 11, to 18% at age 15.

While some episodes of depression in childhood and adolescence may be of relatively short duration (as short as three weeks) depression at this age is a risk factor for further episodes in adulthood (Kovacs et al. 1989). A follow up study of children and adolescents who received treatment for depression found that by their thirties, over three quarters have suffered further depression (Fombonne et al. 2001).

## Comorbidity

The links between somatic problems and anxiety and depression are unclear, but there are ample studies that demonstrate associations between these disorders. Whilst there is a higher incidence of anxiety and depression in children with somatic symptoms, there is strong evidence from twin studies that somatic disorders are distinct and a separate psychological dimension (Gillespie et al. 1999). Indeed the majority of children with somatic symptoms do not have comorbid psychiatric conditions, although it is estimated that between a third and a half may have problems with either anxiety or depression. For those who do have this comorbidity of conditions, it is most likely that their somatic symptoms developed first, before the onset of anxiety or depression, although for some, anxiety or depression may be the primary condition (Garralda 1999). There is also a quantitative link between the conditions in that the more somatic symptoms reported by children, the more likely are anxiety and depression also to be present. Studies have failed to uncover the exact nature of the association between anxiety and depression and the more common somatic symptoms of headache and RAP. Whether headache and pain lead to worry and anxiety, or whether anxiety leads to physical symptoms remains unclear.

In the same way that not all children with somatic symptoms also have anxiety or depression, similarly, not all children with anxiety have accompanying somatic problems. However those with anxiety disorders are more likely to have somatic symptoms than are children without an anxiety diagnosis (Faire 2006; Ginsburg et al. 2006), and again those children with more serious levels of anxiety disorder also display more somatic symptoms than children with lesser anxiety problems (Ginsburg et al. 2006).

The association between anxiety and depression has been explored more extensively than that between anxiety and somatisation, with high rates of comorbidity. For example in a cohort of 11 year olds, 17% of those with anxiety disorders also had depression, although

even more (39%) had an externalizing disorder (Anderson et al. 1987). In approximately two-thirds of cases of major depressive disorder in adolescents, anxiety preceded the depression and persisted after it. However, there is some chronology in that early and middle childhood are the high-risk period for first onset of the more common anxiety disorders, and late childhood appears the risk period for onset of depressive disorders (Kovacs et al. 1989).

Although it is possible to think in terms of high risk periods for the occurrence or emergence of disorders, the evidence from prevalence studies demonstrates that these conditions co-occur, concurrently or successively. Many of the symptoms overlap and, as the following sections will demonstrate, clinical differences may be of little significance when considering issues around risk and protective factors, treatment and prevention.

## Risk factors

Risk factors are those factors which, if present for a child, increase the likelihood that they might develop a particular disorder. The overlap of risk factors for somatic symptoms, anxiety and depression is substantive, and attempting to assess the impact of individual risk factors is problematic since they tend not to be mutually exclusive, but to operate in complex interactions and associations. For example, anxious children are more likely to have anxious parents than are non-anxious children, but the relative contributions of the environmental and genetic influences are not readily unpicked and resolved. Equally, stressful events are demonstrated to increase the risk of disorders developing, but not all children develop the same level of disorder, or even the same disorder in response to a specific stressor. Recent work indicates the important influence of genetic makeup in moderating the impact of stressful events for the development of depression (Caspi et al. 2003)

This section highlights some of the main identified risks. These are genetic and other biological factors or predispositions; family influences, including family beliefs and attitudes to illness, as well as parental anxiety or depressive problems; and stressful life events as well as daily and chronic stressors.

### Genetic or biological predispositions

A number of recent twin studies have demonstrated that the genetic components of some somatic symptoms and anxiety disorders are substantial, with estimates as high as 73% for separation anxiety disorder and 60% for specific phobia disorder (Bolton et al. 2006). Other studies which have concentrated on the mechanisms of heritability have established the genetic link with serotonin markers, which play an important part in physiological functions as well as in emotional states and depression, and in variations in cortisol levels, which are positively associated with anxiety and stress levels (Bartels et al. 2003).



Temperament is also established as a risk factor. Behavioural inhibition in young children has been associated with increased risk of multiple anxiety disorders in middle childhood (Biederman et al. 1990) and a more specific risk of social phobia in adolescence (Schwartz et al. 1999). Neuroticism, which has heritability of around 50%, has been demonstrated to be an important predictor of specific illness, including asthma in adults, and also of a genetic vulnerability to physical illness and psychological distress (Deary et al. 2007).

A further physiological risk is that associated with the sensitisation of the immune system. Recent work on the impact of physical and emotional stress suggests that repeated activation of the stress response during early childhood development, results in a lowering of the threshold for a 'stress' response by the body's immune system (Dantzer 2005).

## Family influences

The family is not only a risk factor in terms of the genetic legacy it transfers to the next generation, but also in the environment it creates for children to grow and develop. Parental anxiety and depression, expectations, coping approaches and the way in which family members interact, have all been shown to play an important role in how children learn to respond to situations or to physical health problems (Barrett et al. 1996; Ginsburg et al. 1995; Whaley et al. 1999).

The children of parents who themselves report somatic problems, anxiety or depression have a higher risk of developing these disorders than do the children of parents without these problems. Several longitudinal studies have demonstrated that children with somatic symptoms are more likely to have parents who themselves report more problems with physical health, or to have mothers with higher neuroticism scores or anxiety problems (Hotopf et al. 1998; Ramchandani et al. 2006). Having a parent with a major anxiety disorder increases the risk of having a childhood anxiety disorder from around 10% to over 30% (Biederman et al. 1990). Indeed, there is evidence that maternal stress during pregnancy impacts on the foetal environment, increasing the likelihood of emotional or cognitive problems including behavioural inhibition in the child (Talge et al. 2007).

Child rearing styles, particularly a maternal controlling style, have been linked to the development of childhood anxiety by restricting the development of children's problem solving skills. By being shielded from potentially stressful situations or not being encouraged to make their own decisions, children fail to learn the essential problem solving skills required for daily living, learning instead to resort to avoidant responses (Rapee 1997; Barrett 1998). Children with no confidence in their ability to cope with or to influence situations tend to adopt avoidance strategies, with negative expectations about situations or their outcomes (Roth & Dadds 1999).

Modelling, reinforcement of behaviours and information transfer have been identified as the key mechanisms which facilitate the learning process within the family (Fisak & Grills-Taquechel 2007). Family beliefs about health influence children's ability to define their

symptoms, to identify physical signals and illnesses. Children with somatic or anxiety problems are more likely to have families for whom health is a focus of interest, so that even minor aches or pains generate increased attention and interest. This focus on health issues and physical symptoms results in children receiving a positive response when they raise topics of illness or of worries or fears, which acts to reward or encourage, and reinforce the development of further problems (e.g., Walker et al. 2002; Peterson & Palermo 2004).

## Stressors and stressful events

Whilst traumatic events such as natural disasters may result in increased rates of anxiety or depression, for most children the stressful life events or daily stresses that are most likely to feature in their experiences are related mainly to school and home. Starting or changing schools, problems with academic work, difficulties with relationships with peers or teachers all require children to have a level of social competence and cognitive ability to cope with new or worrying situations. Studies of pupils in school have demonstrated the importance of social skills for successful interaction with other children and teachers, as a predictor of emotional wellbeing (Gutman & Feinstein 2008; Lindberg & Swanberg 2006).

Whilst worries about how to interact with their peers are a feature of anxiety problems, a number of studies highlight the impact of daily school life on children's somatic symptoms, evidenced by the notable increases in somatic problems when children begin school (Anttila et al. 1999). However, although children are very often exposed to the same stresses, they react differently, with some reacting more 'somatically' or with emotional distress because they view these experiences more negatively than do other children (Waldie 2001; Walker et al. 2001).

A study of children attending psychiatric services suggested that although most severe life events do not precipitate the onset of psychiatric disorders in children, the onset of most disorders is preceded by at least one life event carrying long term threat (Sandberg et al. 2001). The authors argued that the onset of a disorder was not linked to an accumulation of negative life events but to one event of significant long term threat.

Children who react to stresses with pain symptoms have been shown to have less confidence in their ability to overcome the situations or events that they found difficult in their daily life (Walker et al. 2006).

## Protective factors

The previous section has highlighted how risk factors impact on children's behaviours and responses to events or situations that they interpret as stressful. Protective factors are believed to modify the impact and influence of risk factors, by improving or altering responses to situations likely to be interpreted as stressful (Spence & Dadds 1996). This ability to respond successfully in the face of challenges is referred to as resilience or coping,

and is characterized by the ability to maintain a positive outlook on outcomes, and persistence to continue in the face of difficulty.

The ways in which children cope with pain or worries have an important influence on how much pain or disability they suffer as a consequence. In practical terms, children describe a range of strategies for coping with pain and anxiety, such as taking medicine or lying down, distracting themselves by engaging in another activity, relaxation, seeking family support, wishful thinking, becoming helpless, or thinking of ways to solve their problems (Holden et al. 1994; Pothmann et al. 1994).

Some coping strategies have been shown to be more successful than others (Compas & Thomsen 1999; Kaminsky et al. 2006; Walker et al. 2005). The most successful strategies are active strategies. For example, children who believe that they have the ability to reduce or overcome their problems or their pains by working at resolving the problem or situation, have been shown to have fewer somatising problems and lower levels of anxiety.

Children who use an accommodative approach also cope well with potentially stressing situations. Although they believe that they cannot solve their problems, they find a way of accepting or adjusting to their situation. Often this includes positive thinking and distraction, or using some other activity or stimulus to stop them continuing to worry.

The least successful coping strategy is that of children who believe that they can neither solve their problems nor adjust to accommodate them. They adopt passive coping strategies, such as taking to bed, restricting or avoiding activities, and assuming the worst. They disengage from their problems by wishful thinking, avoidance and denial. Children who adopt this disengagement or passive style have been shown to have higher levels of somatic symptoms, anxiety or depression than children who cope using active or accommodative strategies.

There is evidence that children's coping strategies develop and change with age. During the primary school years, accommodative coping increases, as children begin to use distraction and relaxation to deal with problems, although this strategy declines in use during the early teenage years (Rossman 1992). Between the ages of 8-11 years, active, problem focused, coping strategies are also developed and increasingly in used. Several studies suggest that although active coping responses remain the same between ages 8-14 years, accommodative and distraction strategies decrease from about age 11, and maladaptive, passive coping, resignation and self criticism increases. Consequently, 11-14 year olds may demonstrate coping capacities that are not as effective as those found in the younger age group of 8-11 year olds, suggesting that preventative programmes to provide coping skills in late childhood and early adolescence might help children deal better with the additional stresses they encounter around that age (Donaldson et al. 2000; Hampel & Petermann 2005).

Although the coping strategies used at younger ages show no differences by gender, as they get older, girls have been shown to be more likely than boys to use social support and accommodative coping (Frydenberg & Lewis 1993). Girls are also more likely to employ maladaptive, passive coping strategies, such as avoidance. The link between anxiety

disorders and externalising behaviours in boys has been associated with less successful attempts to use active strategies to resolve problems, by attempting to control problems or situations (Compas et al. 1993).

## Effective treatment interventions

Children with symptoms of somatisation, anxiety or depression are at risk of recurrent psychiatric and physical symptoms into adulthood, so intervention and treatment are important to prevent the development of future chronic conditions and more serious psychiatric problems.

Although there is evidence of the effectiveness of pharmacological treatments, for anxiety and depressive disorders (Reinblatt & Riddle 2007), there are concerns about their use (Bailly 2008; Jureidini et al. 2004). The focus of this brief review of treatment interventions is on psychological interventions and treatments that might be successfully implemented or translated from clinic situations to the wider school community, to help children with mild and moderate problems rather than severe disorders. A number of recent rigorous systematic reviews and meta analyses provide composite accounts of the effectiveness of interventions conducted with children. This review-level evidence is set out here, looking at interventions for treating somatisation in children, childhood anxiety and childhood depression.

### Treatment of somatisation and somatic symptoms

Four systematic or meta analyses of therapies and interventions for the treatment of pain, headache, RAP and medically unexplained symptoms in children and adolescents have been conducted in the past five years (Eccleston et al. 2003; Trautmann et al. 2006; Husain et al. 2007; Weydert et al. 2003). These reviewed psychological therapies for managing recurrent pain in children and adolescents including biofeedback, relaxation, behaviour and cognitive therapies, coping and skills training, hypnosis and family therapy. With the exception of relaxation therapy which was conducted in school, almost all the interventions were undertaken in clinic settings, with children referred with recurrent or chronic pain, some attending group sessions, some treated individually. There was substantial evidence for the effectiveness of relaxation and cognitive behavioural therapy (CBT) in reducing the severity and frequency of chronic headache, but the evidence was less convincing for the effectiveness of these treatments in other pain conditions. The interventions reduced somatic problems through relaxation, by developing adaptive illness beliefs and teaching coping skills. In several studies included in the reviews, evidence suggested that relaxation and CBT treatments were just as effective if they were adapted for use by the children themselves or to be taught by other non-professionals in non-clinic situations.

## Treatment of anxiety disorders

Similarly, the large number of studies evaluating the management and treatment of childhood anxiety has also been subject to recent systematic reviews and meta analyses. Four reviews assess the effectiveness of CBT (Cartwright-Hatton et al. 2004; Ishikawa et al. 2007; James et al. 2006; Waddell et al. 2004), and two a wider range of therapies (In-Albon & Schneider 2007; Ollendick & King 1998). Almost all the interventions reviewed were delivered in clinic type settings with children clinically diagnosed with anxiety disorders. A minority of studies included treatments for specific anxiety disorders, such as exposure treatment including systematic desensitisation, for specific fears or phobias. The programmes reviewed included Coping Koala, SET-C, Stress Inoculation Training, Coping Cat, Coping Bear, Friends as well as other less formal programmes. The interventions were conducted with children across a wide age range, but many included children in the upper primary age range and early teenage years. Three anxiety treatment programmes evaluated in school settings, Cool Kids (Mifsud and Rapee 2005), Social and Academic Success (SASS) (Masia-Warner et al. 2005) and Friends (Lowry-Webster et al. 2003) used CBT and reported positive results.

The reviews confirmed the effectiveness of the CBT programmes, as well as exposure treatments for fears and phobias. James and colleagues (2006) found that CBT appeared effective in just over 50% of cases. The studies demonstrate little difference in effectiveness between shorter or longer programmes, or between group and individual sessions. Although some of the programmes included sessions for parents or family, the results appeared inconclusive regarding the relative effectiveness of including parents in the treatment programmes.

## Treatment of depression in children

Whilst interventions for the treatment of somatic and anxiety disorders were generally conducted in clinical settings, permitting relatively rigorous evaluation of effectiveness, there is less robust literature relating to the treatment of depression in children. The smaller numbers entering treatment has limited the scope for conducting trials with randomized experimental designs to satisfy systematic review criteria. Whilst there is evidence to support the effectiveness of interventions for treating adolescent age groups, there are few evaluated programmes for younger age groups. A review of treatments for children aged 6-11 identified only six studies that met the minimum inclusion criteria for systematic review (Compton et al. 2002). Only one study evaluated an outpatient group of clinically referred children. The remaining interventions were conducted in schools with children who had screened positively for depression. CBT was the primary treatment, but mostly the treatment programmes were existing adolescent or adult interventions, modified to accommodate the younger age group. Evaluations of self-help treatments for depression in children and adolescents provide little evidence for effectiveness beyond very short term improvements in mood through massage and relaxation, but no evidence to support any reduction in depression states (Jorm et al. 2006).

## Intervention for prevention

To reduce levels of any childhood mental illness, interventions need to begin early and ideally prior to the development of significant symptoms. With internalising disorders like somatisation and anxiety, which rarely result in disruptive, attention attracting, behaviour, there is a real risk that children do not receive any appropriate intervention until their condition escalates to such a serious level that it impacts on day to day functioning. Preventative programmes not only reduce individual distress, they may also eliminate the need for more costly treatment programmes in the future, by reducing the risk that more serious problems will develop.

The aim of prevention would be to improve emotional health and well-being by reducing the frequency and severity of any physical symptoms or feelings of anxiety. This would include improving social competence and increasing coping, such as developing problem-solving skills, helping the child to understand and resolve their own problems, and to feel confident in becoming a competent problem-solver. However, preventative strategies may need to target multiple risk and protective factors, to take account of the different family and environmental factors to which children are exposed. Although many of the treatment interventions were primarily focussed at the individual level, to improve cognitive and social skills, and change temperamental coping characteristics, preventative strategies may also need to consider the wider environment of interactions with family and peers, and with school.

Despite effective interventions for the treatment of somatic problems, there is no published evidence of programmes specifically targeted at prevention. However it is very possible that programmes aimed at reducing risk of anxiety will help protect against somatisation, as may some of the less specific programmes that set out to promote mental health or emotional well-being by reducing stress or improving coping skills.

Historically, however, programmes to promote mental health or improve emotional well have generally failed to focus on the prevention of anxiety or depression. By far the greater emphasis has been on programmes to prevent conduct problems or substance misuse. For example, out of 47 school interventions targeting academic and mental health, only six targeted depression and two focused on stress management (Hoagwood et al. 2007). A systematic review of mental health promotion in schools (Wells et al. 2003), found that of the 17 studies included in the review, only two addressed depression and one anxiety and coping skills.

## Interventions to prevent anxiety and depression

Whilst there is substantially more research evidence for the treatment of anxiety than for the treatment of depression, the converse is true for research relating to prevention, with substantially more studies aimed at preventing depression than anxiety. However, some of those primarily designed for depression have also measured impact on anxiety, and a limited number have been developed to prevent both disorders. In addition a small number

of programmes which aim to reduce stress, such as Stress Inoculation Training, also include measures of anxiety in outcome effectiveness.

Whilst the treatment studies reported above were conducted in a wider range of countries, prevention studies have generally been restricted to USA and Australia. Some prevention programmes have been tested on targeted groups, that is children and adolescents identified as being at increased risk of anxiety or depression, while others have been trialled on whole populations, such as complete schools or classes, termed universal groups. A systematic review of prevention interventions identified programmes utilising CBT as the most effective, including Cognitive Behavioural Stress Management, STEP, Friends, Penn Prevention and Queensland Early Intervention and Prevention of Anxiety Project (Waddell et al. 2004). Since that review, further studies in Australia with the Cool Kids programme with 8-11 year olds and a targeted prevention intervention with pre school children, have demonstrated improvements in anxiety problems (Rapee et al 2005).

Meta analyses of depression prevention programmes such as the PENN Prevention Programme, PENN Resiliency Programme, PENN Optimism & Life Skills Programme, the Coping with Stress Course, Stress Inoculation Model, Resourceful Adolescent Program, Problem Solving for Life, Psychological Personal Growth Class, and the Friends programme, again concluded that CBT provided an effective prevention intervention (Merry et al. 2004; Horowitz & Garber 2006).

The evidence of the effectiveness of these prevention interventions is patchy, although generally encouraging. Horowitz and Garber (2006) found selective prevention programmes to be more effective than universal programmes, immediately following intervention and at follow up. However effect sizes tended to be small to moderate, both immediately post intervention and at follow-up. Reviewers, however, tend to be guarded in their appraisals, because programmes have not been able to present evidence of sufficient rigor in terms of controlled trials or to demonstrate lasting effects. The real world settings in which school based trials are conducted sets a background environment of parents and family, school and community characteristics that impact on effectiveness of outcomes. Consequently, trials of the same programme can, and have, produced conflicting results in different settings. In addition, studies have so far failed to resolve the methodological issues around the impact of placebo effects. Further, evaluating successful outcomes is less straightforward than for treatment interventions, since symptoms may not reduce during the course of a preventative intervention. Rather they require to be measured over the following time period as children face challenging life events that test the value of the intervention.

The studies offered no conclusive evidence regarding effectiveness in terms of sex or socio-cultural factors, although a substantial proportion of the interventions conducted in the USA tended to be targeted at schools in socially and economically deprived communities.

## Features of CBT programmes for children

Although the interventions listed above vary in some aspects of their content, their principal common feature is CBT which aims to encourage children to explore how the way they think, and what they believe, impacts on the way they behave, and how they respond to stressors or emotional problems. Most programmes aim to build resilience with a programme of psycho-education, somatic management, cognitive restructuring, problem solving, exposure and relapse prevention. Psycho-education explains about anxiety, and the factors that might lead to excessive levels of anxiety being maintained, and the rationale for various treatment techniques. Somatic management techniques may include breathing and relaxation exercises, and training to focus attention away from the physical sensations that can accompany stress and lead to anxiety.

Cognitive restructuring helps children to identify unhelpful and negative thoughts, such as believing they will fail or that they will be ill, and provide pro-active thinking and action that focuses on coping and success rather than failing. Problem solving includes identifying problems and helping children to learn the skills of weighing possible solutions and outcomes. Exposure for some anxiety problems involves a systematic graduated and controlled exposure to a feared situation. The exposure might be imaginary, symbolic, simulated or, in some situations, real (Velting et al. 2004).

## School as a setting for preventative intervention

The school environment offers an effective setting to implement preventative programmes. Interventions can be delivered at relatively low cost with no transport expenses and without the risk of stigma that can attach to attending a clinic or other mental health setting. Interventions based in school also offer the opportunity to educate and support school staff and perhaps parents and carers too, so that being more aware, they may be better able to identify early symptoms of children at risk for somatisation and anxiety disorders. Compared to interventions in a clinic setting, school provides the environment for a 'real world' intervention, being the very place that many children first experience problems, whether in relation to academic achievement or in their interactions with peers or teachers.

Preventative interventions conducted in schools fall into three categories, those that take a whole school approach, those that use a universal, non selective approach, and those that target children at particular risk.

Interventions with a dual role of building individual skills and which also work to develop a positive school climate, such as the Healthy Schools initiatives, provide children with the additional support of a health promoting environment. However, few of the preventative intervention programmes combine the two approaches of school-wide promotion with programmes to develop individual skills. The STEP prevention programme (Felner et al. 1993) and the Better Beginning, Better Futures programme (Peters et al. 2003) both adopt



this approach, but with a focus on school transitions, the former for those moving to higher school, and the latter for children starting school.

Universal interventions offer a number of advantages, most importantly that they reduce any labelling or stigma that attaches to 'special' sessions with children who have been selected for targeted intervention. In addition, universal interventions can assist the development of a positive culture within the classroom and the whole school, offering children the opportunity to test their newly acquired skills in a supportive environment. Their two main disadvantages are that some children who participate in a universal programme may have no need for preventative intervention, and programmes may be too short or delivered at too low a 'dose' to help those who are already at risk or be developing problems. However, some children at risk will be excluded from targeted programmes because selection and screening processes are not well enough developed always to reliably identify those with need. Some of the prevention programmes mentioned above have been applied universally, whilst others have been targeted interventions. Some programmes, such as Friends and the Penn interventions have been adapted and conducted with both groups.

A recent review of school-based prevention and early intervention programs for anxiety and depression in Australia found that of those targeting anxiety, six trials (all evaluating the programme *Friends*) reported lower anxiety immediately or at follow-up, whilst four trials of other programmes found no significant reductions. For depression, 10 of the 17 universal trials reported positive outcomes for depression, and seven did not (Neil and Christensen, 2007).

Research suggests that programmes are most successful when provided continuously over an extensive time period, with short-term preventive interventions producing time-limited benefits with at-risk groups, compared with multi-year programmes more likely to foster enduring benefits (Greenberg et al. 1999; Wells et al. 2003). Spence and Shortt propose that several years of intervention are required, arguing that it is not feasible to expect important behavioural and cognitive life skills to be absorbed with a single intervention programme (Spence & Shortt 2007).

One of the challenges of delivering programmes in school setting is ensuring programme fidelity and sustainability, whether delivered by school staff or other professionals. Important aspects of implementation are the standardized training of providers, monitoring of actual performance, and adequate provision of the necessary time, supplies, and facilities to support programmes (Han & Weiss 2005).

## Conclusions

Somatisation and anxiety are widespread conditions in children, as is depression although to a lesser extent. Estimates suggest that more than half of all 11 year olds have aches or pains that cause discomfort, and around a third experience problems with anxiety to a level that impacts on the way they live their day to day lives. There is substantial comorbidity associated with somatisation, anxiety and depression, with these conditions sometimes occurring alone, sometimes concurrently or successively. Of particular concern is that several recent studies point to an increase in prevalence of these problems, even in children of primary school age. Not only are children who develop these problems at increased risk of social and academic difficulties in their daily lives, the research evidence also suggests that a substantial proportion will, if they receive no effective intervention, be at increased risk of developing more serious problems during adolescence, and of psychiatric disorders in adulthood.

A range of risk factors has been identified which increase the likelihood of children developing problems. Whilst genetic and biological factors have been demonstrated to be strong influences in a predisposition to somatisation and anxiety, the influence of environmental factors has been estimated significantly to modify these heritable and physiological characteristics. The role of the family environment, including family beliefs and attitudes to illness and child rearing styles, have been identified as factors which may increase risk or protect children from developing these disorders.

The way in which children cope with their physical symptoms or worries has an important influence on how much these problems impact on their daily living. The most successful children appear to be those who take a proactive stance and believe that they can deal with, and resolve, the problems that are upsetting them, or if not, find a way of coping in which they make adjustments to accommodate their difficulties. Children who believe that they can do nothing to resolve their problems, and consequently tend towards avoidance and denial of problems, appear to be at greatest risk of developing somatising and anxiety problems.

In terms of treatment for children whose problems become serious enough that they attract intervention, CBT has proved effective in improving outcomes, by helping children to develop successful coping skills and to manage their physical symptoms of somatisation, anxiety and depression. Although treatments have tended to be evaluated for effectiveness with a specific disorder, the comorbidity of these conditions and the overlap between many of the risk and protective factors, means that very often a specific intervention may also have a concurrent, positive impact on one of the other conditions.

Despite the widespread prevalence of anxiety and somatisation problems, there has been little attention to preventative work in the UK, possibly because children with these problems tend not to attract professional interest until their symptoms develop to clinical disorder level. However preventative research for anxiety and depression, but not somatisation, has been underway, mainly in USA and Australia, for around 15 years. A number of prevention interventions have been tested, many adapted from and using the

same CBT techniques as treatment programmes. Most interventions have been conducted in school settings, mostly with white populations rather than with more ethnically diverse groups. Evaluation of these prevention interventions is problematic, not only because school settings do not lend themselves to controlled trials, but also because rigorous evaluation of effectiveness of prevention requires a long follow up period. However, despite these caveats, the preventative interventions generally appeared to indicate positive results. However, only one programme has been tried and reported on in the UK and there is considerable room for more research here to test the applicability of programmes for this country.

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