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Generalised Anxiety Disorder in Children:
Nature, Assessment and Treatment.

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Abstract:

Generalised Anxiety Disorder (GAD) in children is characterized by excessive and uncontrollable worry about numerous themes and activities such as school performance, safety, keeping schedules, ‘getting things right’, family issues, unfamiliar situations, and world events. GAD is associated with a chronic course and has a significant impact on a child’s school, social and family life. Few empirical studies have specifically examined the nature, assessment and treatment of GAD; instead knowledge of the disorder relies on studies using a heterogenous sample of children with anxiety disorders. Such studies suggest that reliable and valid methods are available with which to assess anxiety in children with GAD. Also, mounting support for the efficacy of cognitive behavioral therapy in the treatment of anxiety disorders in children provides practitioners with confidence in the use of this method in reducing generalized anxiety symptoms in children.

The purpose of this paper is to provide readers with current information on the nature, assessment and treatment of Generalized Anxiety Disorder (GAD) in children. Few empirical studies however have exclusively examined children with GAD. Much of our knowledge of the disorder is derived from studies using a sample of children with a range of anxiety disorders. Knowledge of GAD also relies heavily on research conducted on Overanxious disorder (OAD), the likely diagnosis given to children with excessive worry using the revised Third Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R)\(^1\). Introduction of the Fourth Edition (DSM-IV)\(^2\) evidenced a change in the classification of childhood anxiety-related disorders and as such, Overanxious Disorder (OAD) was subsumed under GAD. A comparison of cases diagnosed independently revealed that the change in the nosology has not dramatically changed the characteristics of identified cases\(^3\). The nature, assessment and treatment of GAD in children will be reviewed.

Nature

Approximately 3-12% of children experience excessive and uncontrollable worry that is both chronic and disabling\(^4\). Diagnosed as Generalized Anxiety Disorder (GAD), this worry is accompanied by at least one persistent physiological symptom such as stomach aches, disturbed sleep, irritability, restlessness or concentration difficulties\(^5\). The worry is not confined to a specific situation/event as in phobic disorders but pertains to a number of domains in the child’s life and occurs for the majority of the child’s day, more days than not.

Typically children with GAD will worry excessively about their own and their family’s safety and health, their performance at school, unfamiliar situations, keeping schedules, getting things right, getting into trouble, family finances, their friendships, local and world events (such as war, natural disasters). Parents often report that
children with GAD catastrophize situations and worry about all things possible. This processing bias towards threat has been demonstrated by a number of experimental studies showing that children with GAD are more likely to have both an attention and interpretation biases towards threat.\textsuperscript{6,7} Parents also report that children with GAD seek excessive reassurance prior to an event: “Is it going to be okay? What is going to happen?” As part of normative development, children frequently ask inquisitive questions but for children with GAD this is repetitive and excessive in nature.

**Comorbidity.** GAD rarely presents on its own and is likely to be co morbid with other anxiety or mood disorders. This is a common feature of anxiety disorders in children and GAD is no exception. Hence, much of the research on GAD relies on data from children with a number of anxiety disorders, not just GAD, somewhat limiting our understanding of pure GAD.

Perhaps the most comprehensive study of comorbidity in a clinical sample of anxious children was conducted by Verduin and Kendall.\textsuperscript{8} In a sample of 199 anxiety disordered children, 55% of children met criteria for a primary diagnosis of GAD. Of the entire sample, 83% met criteria for more than one disorder indicating high levels of comorbidity. The most common diagnosis occurring with GAD was specific phobia (48.6%). Other comorbid diagnoses included Social Phobia (31%), Separation Anxiety Disorder (24.8%), Attention Deficit Hyperactivity Disorder (18.3%), Dysthymia (11%), Oppositional Defiant Disorder (10%), and Major Depressive Disorder (6.4%). These results show a strong pattern of comorbidity in children with GAD.

A study by Masi and colleagues shows even higher rates of comorbid mood disorders in children with GAD: in a clinical sample 62% of GAD children met criteria for a mood disorder.\textsuperscript{9} Masi et al. also showed that GAD children with mood disorders were more impaired than children with GAD only.\textsuperscript{10} Clearly these results show that
children with GAD rarely present with only one diagnosis. Assessment of children with GAD requires screening for multiple anxiety, mood and behavior disorders.

*Onset and Course.* Average age of onset of childhood GAD is estimated to range from 8.8 to 10 years of age\textsuperscript{11,12}. Parents often find it difficult to pinpoint the age of onset as they frequently report that their GAD child has always worried. In line with this, adults with GAD typically report a chronic course of GAD present since childhood. Evidence points to GAD as a chronic disorder that, without treatment, persists and places the child at risk for developing other disorders such as depression\textsuperscript{13}.

One factor associated with the onset of excessive worry is cognitive development\textsuperscript{14}. With cognitive development comes the ability to make predictions about a future event and the ability to anticipate multiple negative outcomes. The anticipation of multiple misfortunes is part of the worry process. With increased cognitive ability, the capacity to worry in a more complex fashion emerges. A recent study by Muris and colleagues showed that in a sample of 8-13 year olds, age and cognitive development (as measured by performance on a series of Piagetian conservation tasks) predicted the child’s ability to elaborate on possible negative outcomes which in turn predicted the emergence of worry\textsuperscript{15}. Further, Muris et al. showed that children who had demonstrated concrete operational abilities had higher rates of worry\textsuperscript{16}. Stress the importance of cognitive development in understanding the emergence of GAD in children.

*Assessment*

Studies have consistently shown relatively low rates of agreement between parents, children and teachers on anxiety symptoms\textsuperscript{17}. As a result, multi-informant assessment is important in the correct diagnosis/identification of children with GAD\textsuperscript{18}. Higher rates of agreement between parents and children are reported for the more observable symptoms\textsuperscript{19}, but generally children report fewer symptoms than parents.
and tend to be unreliable in reporting complex details, such as onset and duration of anxious symptomatology \(^{17}\). As such, the preference is to collect information from a number of sources in order to obtain the most accurate and comprehensive picture. In addition to multiple informants, a multi-method assessment including diagnostic interviews, questionnaires and behavioral observations is preferred. The following section details some of the most commonly used assessment measures of GAD in children and adolescents.

**Structured Diagnostic Interviews.** Given the high incidence of comorbidity in children with GAD, structured diagnostic interviews are recommended. Structured diagnostic interviews provide a more reliable assessment of the child’s worry and in identifying the presence of other internalising and / or externalising disorders \(^{20}\). The Anxiety Disorders Interview Schedule for DSM-IV: Child Version (ADIS-C/P)\(^{21}\); is a widely used structured diagnostic interview for use with children and parents to diagnose anxiety disorders according to DSM-IV criteria in youth aged 6 to 17 years. Psychometric studies of the ADIS-C/P have shown good to excellent reliability for GAD symptoms and diagnosis\(^{22}\). Several other diagnostic interviews have been developed for children\(^{23}\) including, the Diagnostic Interview for Children and Adolescents (DICA-IV \(^{24}\)), the Child and Adolescent Psychiatric Assessment (CAPA \(^{25}\)), and the Kiddie-Schedule for Affective Disorders and Schizophrenia (KSADS-PL; \(^{26}\)).

**Questionnaires.** Questionnaires are frequently used to provide ancillary information to diagnostic interviews when assessing anxiety in children and adolescents. Two of the most commonly used self-report measures, namely the Revised Children’s Manifest Anxiety Scale (RCMAS)\(^{27}\) and the State-Trait Anxiety Inventory for Children (STAI-C)\(^{28}\) have recently been criticized for their
developmental insensitivity and inability to discriminate children with anxiety disorders from children with other internalising and externalising disorders\textsuperscript{29}. To address this limitation, measures such as the Multidimensional Anxiety Scale for Children (MASC)\textsuperscript{30}, the Spence Children’s Anxiety Scale (SCAS)\textsuperscript{31}, and the Screen for Child Anxiety Related Emotional Disorders (SCARED)\textsuperscript{32} have since been developed. The MASC has demonstrated excellent retest reliability and adequate convergent and divergent validity for children aged 8 to 19 years\textsuperscript{33}. The SCAS has shown adequate internal consistency and six-month retest reliability, strong convergent validity and good discriminant validity for children aged 7 to 16 years\textsuperscript{31}. The SCARED has demonstrated good internal consistency, retest reliability, and discriminant validity for children aged 9 to 18 years\textsuperscript{32}. Both child and parent report versions of these questionnaires are available.

The SCARED and the SCAS were designed to assess DSM-IV-defined anxiety disorders and hence both include a generalised anxiety factor. The MASC has a number of scales that assess GAD symptoms including physical symptoms (tense/restless and somatic/autonomic) and harm avoidance (perfectionism and anxious coping). While these three measures have included scales designed to assess GAD, the ability of these scales to differentiate children with GAD and children with other non-GAD diagnosis so far has proved limited\textsuperscript{33}.

Another questionnaire useful in the assessment of excessive and uncontrollable worry in children and adolescents is the Penn State Worry Questionnaire for Children (PSWQ-C)\textsuperscript{34}. The PSWQ-C has been shown to have excellent retest reliability and good convergent and discriminate validity. Chorpita and colleagues found that the PSWQ-C was able to discriminate between children meeting DSM-IV criteria for GAD, those meeting criteria for any other DSM-IV anxiety disorder, and those not
meeting criteria for any DSM-IV anxiety or mood disorder. PSWQ-C scores have also been shown to be associated with GAD symptomatology.

A number of other parent and teacher report questionnaires offer additional and important perspectives on the child’s overall symptoms and behavior; however they do not specifically measure symptoms of GAD. These measures include the Child Behavior Checklist (CBCL) and the Strengths and Difficulties Questionnaire. Both of these scales have shown to have adequate psychometric properties and include both parent and teacher versions.

Behavioral Observations. Throughout the diagnostic interview the clinician observes any behavior suggestive of anxiety, such as fidgeting, fingernail biting, avoiding eye contact, leg shaking, trembling voice and task avoidance. Unstructured behavioral observation may also take place in other settings such as the classroom or the child’s home. More structured observation techniques are employed in behavioral avoidance tasks (BATs), where the child is purposely exposed to a feared object or situation (e.g., unfamiliar situation, running late to school, forgetting a school book) while the trained clinician concurrently assesses the child’s subjective level of anxiety, physiological reactions, and other behavioral responses. BATs are useful as they provide direct and objective information about situations that are the most anxiety inducing and how the child reacts to them. Nevertheless, several disadvantages exist for this method of data collection, the most notable of these being the time-consuming nature of the assessment and the lack of reliable and valid coding methods. Also, BATs are less practical for disorders such as GAD where threatening stimuli are difficult to create as they involve a complex set of cognitive cues.

Treatment

*Psychotherapy for children with GAD.*
Specific clinical trials for the treatment of childhood GAD are lacking. However, a growing body of empirical evidence supports the efficacy of cognitive behavioral therapy (CBT) in the treatment of childhood anxiety disorders. As such, cognitive behavior therapy has emerged as the treatment of choice, and has been labelled a “probably efficacious” treatment, for childhood anxiety disorders\textsuperscript{38}. The first randomised controlled clinical trial (RCT) evaluating child focused CBT (Individual Cognitive Behavioral Therapy; ICBT) for the treatment of childhood anxiety disorders was conducted by Kendall in 1994\textsuperscript{39}. Subsequent to that, a number of studies have provided mounting support for the efficacy of CBT in the treatment of childhood anxiety disorders. Additionally, CBT intervention has received empirical support in a group format and with an active family treatment component. Many of the clinical trials of CBT for anxious youth have consisted of samples with a significant proportion of children with a diagnosis of GAD/OAD\textsuperscript{39,40}, giving practitioners confidence in the use of CBT for children with GAD. These studies will be reviewed briefly.

**Child-Focused CBT.** In an RCT, forty-seven anxiety-disordered youth (60% diagnosed with OAD) were randomly assigned to either individual child focused CBT or a wait-list condition (WLC)\textsuperscript{39}. For children in the ICBT group, treatment consisted of 16 sessions that covered: affective recognition, development of coping self talk, relaxation training, self-evaluation and reward, problem solving and gradual exposure. ICBT was associated with improvements on parent and child reported coping, child and parent-reported distress, and observations of behavior, when compared to children in the WLC. Furthermore, 64% of the children treated with ICBT no longer met diagnostic criteria at post-treatment as compared to 5% (one child) in the WLC. Treatment gains were reportedly maintained at 1-, 2-, and 5-year follow-up\textsuperscript{41} and were
replicated in a second RCT\textsuperscript{40}. These results provide support for the efficacy of ICBT in the treatment of anxiety-disordered youth.

Given that group treatment acts to minimise cost delivery, improve time effectiveness, and enhance positive modelling opportunities, research has examined whether CBT intervention presented in a group format is as effective as individual CBT in the treatment of childhood anxiety disorders. Flannery-Schroeder and Kendall\textsuperscript{42} conducted a RCT in which thirty-seven, 8-to-14 year old clinically anxious children, (57% met diagnostic criteria for GAD) were randomly assigned to one of three conditions: ICBT, Group CBT (GCBT), or Waitlist (WL). Across both treatment conditions, significantly more children did not meet diagnostic criteria at post-treatment (73% ICBT; 50% GCBT) when compared to participants in the WL condition (8%). The difference between the two treatment conditions was not statistically significant. Furthermore, 64% of the children in the ICBT and 50% of the children in the GCBT no longer met criteria for GAD, Separation Anxiety Disorder (SAD), or Social Phobia (SP) at post-treatment, and gains were maintained at 3-month follow-up.

\textit{Family CBT}. It is widely documented that parental factors play a role in the maintenance of childhood anxiety\textsuperscript{43}. For example, parental encouragement of avoidance and parental overinvolvement/overprotection are two family factors which have been associated with childhood anxiety disorders\textsuperscript{44}. As such, research has examined the efficacy of parental involvement in the treatment of anxiety-disordered children and youth. Whilst the exact nature of the content and structure of family involvement in treatment varies between studies, a mounting body of evidence suggests that parental involvement in the treatment of anxiety-disordered youth is associated with enhanced outcomes.
Using an Australian adaptation of Kendall’s ‘Coping Cat’ program, Barrett, Dadds, and Rapee evaluated the incorporation of structured family intervention in the treatment of childhood anxiety in a RCT. Seventy-nine anxiety disordered children, aged 7 to 14 years (45 boys, 34 girls; 38% with OAD) were randomly assigned to one of three conditions: ICBT, CBT plus family anxiety management training (CBT+FAM), or wait list condition (WLC). In addition to children receiving individual CBT intervention, as in the ICBT condition, children and parents in the CBT+FAM condition also attended Family Anxiety Management therapy sessions. The family component of treatment covered three key areas: (1) child management – this included educating parents on how to reward courageous behavior and extinguish excessive anxiety; (2) parent anxiety management and; (3) communication and problem solving skills. A total of 12 sessions were dedicated to family intervention.

Highly favourable results were forthcoming supporting strong treatment gains for both treatment groups. Results indicate that, at post-treatment and 12-month follow-up, treatment gains were significant across multiple assessment tools, for CBT and CBT+FAM interventions. At post-treatment 70% of children in the treatment conditions no longer met criteria for a current anxiety disorder (26% in WLC). A significantly greater number of children in the CBT+FAM, than the CBT condition, no longer met diagnostic criteria for an anxiety disorder at post-treatment (84% in CBT+FAM versus 57.1% in the CBT condition). Treatment gains were maintained at 12-month follow-up with 95.6% of the children in the CBT+FAM condition and 70.3% of children in the CBT condition no longer meeting criteria for an anxiety disorder. Given the focus on GAD, of particular interest is the finding that 68.2% of the children in the study diagnosed with OAD were diagnosis free at post-treatment and 75% at 12-month follow-up.
These findings must be interpreted in light of significant effects for age and gender. Whereas female participants responded significantly better to CBT+FAM than CBT at post-treatment (diagnosis free: 83% CBT+FAM and 37% CBT at post-treatment), and 12-month follow-up (100% CBT+FAM and 57% CBT at 12-month follow-up), male participants showed no significant differences across treatment conditions at either time-point (diagnosis free post-treatment: 84% CBT+FAM and 65% CBT; diagnosis free 12-month follow-up: 92% CBT+FAM and 75% CBT). In regard to age, younger children (7 - 10 years old) responded better to CBT+FAM, but older children showed no difference across the two treatment conditions. These results provide preliminary evidence that family involvement in treatment is most beneficial for younger children and for girls.

Not only were the treatment gains described above maintained at 12-month follow-up, they were also maintained at six-years following treatment. Of particular importance is the finding that 81% of participants initially diagnosed with OAD were diagnosis free at long-term follow-up. Thus, it can be concluded that CBT for childhood anxiety disorders has demonstrated long-term efficacy.

Other studies have also evaluated the efficacy of CBT group-based family intervention with favourable results. Silverman et al., conducted an RCT comparing the therapeutic efficacy of group CBT with concurrent parental sessions to a waitlist (WL) condition in the treatment of 56, 6-16 year old anxiety disordered children. Substantial improvement, across main outcome measures was evident for children in the GCBT plus parent session treatment group. Sixty-four percent of participants in the GCBT no longer met criteria for their primary diagnosis at post-treatment (13% in WL) and 82% showed clinically significant improvement at post-treatment (9% WL). At 3-month follow-up 77% of participants no longer met criteria for their primary diagnosis, and gains were maintained at 6-and 12-month follow-up.
Components of CBT

CBT manuals are readily available to practitioners for the treatment of childhood anxiety. Whilst the specific combination of techniques may vary slightly from clinician to clinician, somatic awareness, cognitive restructuring, problem solving and behavioral exposure underpin the general application of CBT for childhood anxiety. In family based programs, additional components such as contingency management and parent anxiety management is often included.

Homework is emphasised as having a key role in the treatment of anxiety as it provides participants with an opportunity to practice the skills learnt in session. It is unclear from current research which of these components serves as the active component of treatment. Consequently, further research using dismantling, parametric, and additive designs (Borkovec & Miranda, 1999) in treatment outcome research for children with GAD is needed. The following provides a brief description of the key areas and where appropriate discusses the involvement of the family.

Awareness of Physical Symptoms and Somatic Management. Children are taught that when they become anxious, physiological changes occur in their body. Awareness of physical symptoms is emphasised as being helpful in the early detection of anxiety. Techniques such as deep, diaphragmatic breathing and muscle relaxation are often taught as a component in the somatic management of anxiety. Deep breathing is particularly useful as it is an easy and portable tool for children to utilise. Muscle relaxation may be taught by getting the children to tense and relax muscle groups sequentially. Relaxation scripts or tapes can be provided to children to practice the technique for homework. Children are encouraged to practice and use the somatic management techniques in anxiety provoking situations.

Cognitive restructuring. Cognitive restructuring involves understanding the relationship between thoughts and feelings, the impact of thinking errors on feelings
and behavior, and the process of evaluating or challenging negative thoughts. Children learn to identify their negative ‘self-talk’ and understand that anxiety is associated with ‘expecting bad things to happen’. Children are instructed to become ‘thought detectives’ and to treat their thoughts as mysteries to be tested and challenged. The detective thinking process includes the following steps: (1) identifying the event that is causing concern; (2) identifying the thought behind the feeling; (3) looking for realistic evidence; (4) listing all the alternative things that might happen by asking; and (5) identifying a realistic thought to replace the worried thought. Parents are taught to coach and encourage their children in thought challenging, rather than providing excessive reassurance to their child’s anxious thoughts.

*Problem solving.* Problem solving is aimed at assisting children to generate alternate, more adaptive solutions, to a given situation. The aim is to enable children to cope in anxiety-provoking situations without reverting to their usual maladaptive response of avoiding the situation. For example, children are taught to identify a specific problem, generate possible responses to the problem, explore the costs and benefits associated with each possible response, and implement the most feasible response. Problem-solving skills are most effectively taught by working through a real life example with the child.

*Contingency Management.* Children are taught that, whilst rewards can come from others, they can also reward themselves. The concept of positive self-talk, as a reward, is introduced. For example, children learn how to reward themselves by saying things such as: “I did a good job”. The rewarding of courageous behavior and effort are emphasised, not just rewarding the outcome. When children engage in exposure to feared stimuli/situations, rewards become important. The use of appropriate awards is modelled throughout the session by the therapist as they reward contribution in session and engagement with homework tasks. Parents are also
educated about the principles underlying contingent rewarding and ways in which they can encourage courageous behavior rather than anxious behavior. Techniques include: differential attention to anxious versus courageous behavior, the importance of clear, concrete and specific praise, the use of proportional rewards, modelling appropriate behavior, and providing their children with independence to “fight their own battles”.

**Gradual Exposure.** Exposure is considered a key component in the treatment of anxiety disorders. The rationale behind exposure is that a child needs to face fear to fight fear. In exposure, fears are faced gradually, working from lesser fears through to greater fears. A hierarchy of fears/worries is devised, which contains a number of feared situations. The feared situations are placed in order of least fearful to most fearful. Step-ladders are then created for each fear on the hierarchy in which the fear is broken down into steps. For example, if a child is continually worried about forgetting her school books and checks multiple times before leaving for school, the step ladder might start with the child only checking her bag twice before school and a more difficult step might include deliberately forgetting an important book for school.

Children must successfully face up to the fear before progressing to the next rated fear on the hierarchy. In addition, the young person is encouraged to stay in the feared situation until they learn that ‘nothing bad happened’. Repetition of exposure to the feared situation/stimuli is essential.

Exposure can take many forms such as imaginal (imagining the feared situation or stimuli), symbolic (using pictures or props), and in vivo (actually being in the feared situation or with the feared stimuli). Exposure is first attempted in the therapy setting and is continued by the child for homework between sessions.

**Pharmacotherapy for Childhood Generalised Anxiety Disorder**

It has been suggested that the clinical use and prescription of most psychotropic medications, for psychological disorders in childhood, far exceeds rigorous evidence
supporting their effectiveness and safety\textsuperscript{51}. This is reflected in the paucity of empirical data regarding the use of pharmacotherapy for childhood GAD. To date, only a handful of studies have examined the effectiveness of psychotropic medications for the treatment of GAD in children. In 2001, Rynn, Siqueland, and Rickels\textsuperscript{52} conducted a placebo-controlled trial of a Selective Serotonin Reuptake Inhibitor (SSRI), sertraline, in the treatment of children with GAD. Fluvoxamine, an SSRI, has also shown therapeutic potential in an 8-week randomised, double blind placebo controlled study in the treatment of GAD, social phobia, and separation anxiety disorder\textsuperscript{53}. Prior to this, the effectiveness of fluoxetine in the treatment of childhood GAD was examined \textsuperscript{54}. Finally, the use of buspirone \textsuperscript{55,56} and clonazepam\textsuperscript{57} in the treatment of childhood GAD have received some attention. A review of these studies follows.

The effectiveness of two SSRI’s, namely sertraline and fluvoxamine, has been examined in the treatment of childhood GAD. In a placebo-controlled trial, conducted by Rynn, Siqueland, and Rickels \textsuperscript{52}, twenty-two children aged 5-17 years, who met criteria for GAD, participated in the study. Participants underwent a 9-week double-blind treatment phase in which they received either sertraline or a placebo medication. Random assignments were made in groups of four subjects, with each group receiving two placebo and two sertraline treatment assignments. Sertraline capsules contained 25mg for the first week and 50mg for weeks 2-9. Participants were instructed to take their medication once daily in the evening. Medication compliance was monitored using a pill count.

The results of the study indicate that sertraline was effective in the treatment of childhood GAD. Significantly more symptom reduction, based on psychiatrist and patient completed scales, was evidenced in patients who received sertraline than in those who received placebo. From week 4 to the end of treatment, significant treatment differences were forthcoming on the Hamilton anxiety scale total score and
psychic and somatic factor scores and the Clinical Global Impression (CGI) severity and improvement scale scores in favor of sertraline. Furthermore, 90% of participants treated with sertraline improved at treatment endpoint (10% placebo improved at endpoint). No significant differences in adverse side-effects were reported between the sertraline and placebo groups.

Although the results of the study are promising and provide a solid foundation for future research, more studies are needed to replicate the findings. Rynn et al. noted that future studies are required to ‘examine minimum dose requirements, maximum duration of therapy, relapse rates after various treatment intervals, and a comparison of medication to cognitive behavioral treatments’ (p.2013) 52.

The use of Fluvoxamine, in the treatment of GAD, SAD and SP, has received support in an eight-week randomised double-blind controlled trial in which 128 paediatric patients (aged between 6 – 17 years) received either fluvoxamine (n = 63) or placebo (n = 65) in conjunction with supportive psychotherapy 53. Adolescents, aged 12-17 years received maximum daily doses of up to 300mg/day and children younger than 12 years received maximum daily doses of up to 250mg/day. Fluvoxamine dose was increased weekly in approximately 50mg increments. Anxiety symptoms and functional impairment, as measured by changes in weekly PARS and the Clinical Global Impressions Improvement Scale (CGIS), served as measures of outcome.

The results indicate that, at the completion of the trial, the mean Pediatric Anxiety Rating Scale score had declined by 52% versus 16% for patients receiving fluvoxamine versus placebo. Significant differences between fluvoxamine and placebo groups were evident by week 3 of treatment and peaked at week 6 of treatment. Additionally, 76% of patients receiving fluvoxamine, as compared to 29% in the placebo group, achieved scores lower than 4 on the CGIS scale. In regard to between group differences, abdominal discomfort was reported more often in the
fluvoxamine than placebo group (49% vs 28%). Increases in motor activity also showed greater likelihood in the fluvoxamine than placebo group (27% vs 12%) however this did not reach statistical significance.

Following completion of the randomized trial, participants were invited to enter a six-month open label treatment phase\textsuperscript{59}. Results indicated that, during six months of continued open label treatment with fluvoxamine, treatment gains were maintained in 33 of 35 (94%) of subjects who initially responded to fluvoxamine with anxiety symptoms remaining low.

The results supporting the effectiveness of fluvoxamine in the treatment of childhood anxiety disorders are promising. However, additional studies are required to replicate the above reported findings. Furthermore, the implication of long-term use of fluvoxamine in children and long-term effects has yet to be examined.

The first open trial of fluoxetine, in the treatment of childhood GAD was conducted in 1994 by Birmaher et al.\textsuperscript{54} with 21 children and adolescents presenting with overanxious disorder, social phobia, or separation anxiety disorder. Most of the patients’ presented with co-morbid anxiety diagnoses, with only 6 patient’s presenting with pure OAD. Prior to being treated with fluoxetine, all patients had been treated unsuccessfully with one or more psychotherapeutic interventions. The mean fluoxetine dose was 25.7 mg/day (10mg/day - 60 mg/day) and length of time varied from 1 to 31 months, with an average of 10 months.

The results indicate that 95% of patients showed some improvement in anxiety and 81% showed moderate to marked improvement, as rated on the Clinical Global Impression Scale. Improvement began after 6 to 8 weeks of treatment with fluoxetine. Side effects reported include: mild headache (n = 1), nausea (n = 3), insomnia (n = 3), anorexia (n = 1), and stomach aches (n = 1). Most of these side effects were reported as being ‘mild’ and ‘transient’.
These findings are preliminary and provide limited support for the use of fluoxetine in the treatment of childhood OAD, SAD, or SP. That fluoxetine was well tolerated in the children treated is encouraging. Treatment differences were not forthcoming among patients who had OAD alone or co-morbid diagnoses. However, the findings reported must be interpreted with caution and given the limitations of relying on retrospective chart review data and an open-label treatment. Further studies utilising double blind, placebo-controlled methodologies are required.

The use of benzodiazepines, namely alprazolam and clonazepam, has also been explored in the treatment of childhood OAD/GAD. In a double-blind study of 30 children and adolescents with avoidant disorder or OAD, Simeon\textsuperscript{58} found no difference between alprazolam and placebo. Furthermore, patients with OAD appeared to be even less responsive to alprazolam than the group as a whole. In another study, the results did not support the use of clonazepam in doses up to 2 mg/day in a sample of anxious children (total n = 57, OAD n = 2)\textsuperscript{57}. OAD was insufficiently represented for a specific drug effect to be present. Given these findings, further study is needed before one can reach a conclusion about the efficacy of benzodiazepines for the treatment of GAD in children.

Two studies, available in the literature, support the effectiveness of buspirone in the treatment of childhood GAD. In an open-trial, Kranzler\textsuperscript{55} reported that a 13-year-old boy with OAD and school refusal was successfully treated with buspirone on 10 mg/day. Additionally, results of an open-label study of adolescents with OAD or GAD, using 15 to 30mg of buspirone/day, indicate that ratings on the Hamilton Anxiety Scale significantly decreased after 6 weeks of treatment\textsuperscript{as cited by 56}. Double-blind, placebo-controlled trials are recommended to further examine the efficacy of buspirone in the treatment of childhood GAD.
Given the indeterminate findings presented above, lack of strong empirical data supporting the effectiveness of psychotropic medications in the treatment of childhood GAD, and the strong empirical support for the effectiveness of cognitive behavioral therapy, it is recommended that psychotropic medications for childhood GAD be used after psychological therapies have been tried or in conjunction with psychological interventions. Additionally, when using psychotropic medications with children, practitioners must engage in ongoing assessment and monitoring in the domains of learning, psychosocial and physical functioning.

Summary

GAD in children is characterized by excessive and uncontrollable worry about a number of events and activities in the child’s daily life. GAD is a prevalent and chronic disorder that is highly comorbid with other disorders and has a significant impact on the child’s life. Currently, reliable and valid methods are available with which to assess childhood anxiety (e.g., structured interviews and questionnaires). Furthermore, efficacious treatments for anxious children have emerged with CBT being the treatment of choice.

In recent years, our understanding of childhood anxiety disorders has grown exponentially. Much of our understanding of GAD, however, is still reliant on studies of children with a range of anxiety disorders. Future research is needed that specifically examines children with GAD compared to anxious, depressed children without GAD. Such research would aid in the identification of factors unique to GAD, improve assessment methods and potentially enhance treatments for children with GAD.


48. Silverman WK, Kurtines WM, Ginsburg GS, Weems CF, Lumpkin PW, Carmichael DH. Treating anxiety disorders in children with group cognitive-


Education Goals

1. The reader will become familiar with the nature of Generalized Anxiety Disorder in children. Areas of attention include diagnostic criteria, prevalence, comorbid conditions, course and onset.

2. The reader will be able to make an educated choice about measures with which to assess Generalized Anxiety Disorder.

3. The reader will be able to describe the use of Cognitive Behavioral Therapy and pharmacotherapy for children with Generalized Anxiety Disorder.
CME Questions

1: The diagnosis GAD refers to excessive and uncontrollable worry
   a) about a specific event
   b) about a number of domains in the child’s life
   c) that occurs for most of the day for one to two days a week
   d) in response to a stressor

   b) about a number of domains in the child’s life

2. Which of the following statements is not true about the recommended assessment of generalized anxiety disorder in children?
   a) Rely on parent and teacher report only when assessing symptoms
   b) Parents and children often disagree on symptoms
   c) Structured diagnostic interviews improve reliability of diagnosis
   d) Multi-method, multi-informant assessment is preferred.

   a) Rely on parent and teacher report only when assessing symptoms

3. Which of the following statements is true about GAD and comorbidity
   a) GAD tends to present as a solitary diagnosis
   b) GAD is frequently comorbid with selective mutism
   c) GAD is frequently comorbid with depression
   d) Depression has its onset before GAD

   c) GAD is frequently comorbid with depression
4. Which of the following is not a questionnaire measure of anxiety symptoms in children?
   a) BAI
   b) SCAS
   c) MASC
   d) SCARED

   a) BAI

5. Randomized clinical trials of cognitive behavioral therapy for anxious youth show:
   a) CBT is comparable to waitlist
   b) Group treatment is better than individual treatment
   c) Adding a family component enhances outcomes for younger participants
   d) CBT provides short-term but not long term gains.

   c) Adding a family component enhances outcomes for younger participants

6. Which of the following components is generally not seen in Cognitive Behavioral Therapy for anxious youth:
   a) Cognitive restructuring
   b) Gradual exposure
   c) Flooding
   d) Contingency management

   c) Flooding
7. Double-blind placebo-controlled studies have been conducted on Sertraline using a sample of children with Generalized Anxiety Disorder

True
False

True

8. Which of the following statements is true about the current state of the literature on medication use with anxious children:

a) Strong empirical data supports the effectiveness of psychotropic medications in the treatment of childhood GAD,

b) Practitioners must engage in ongoing assessment and monitoring in the domains of learning, psychosocial functioning and physical functioning.

c) Research has shown the positive effects of sertraline are maintained long term

d) Fluoextine is the treatment of choice for children with generalized anxiety disorder.

b) Practitioners must engage in ongoing assessment and monitoring in the domains of learning, psychosocial functioning and physical functioning.