

Overview of Mental Health Medications
for Children and Adolescents

Module 4
Anxiety Disorders

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Anxiety Disorders

- * Subjective sense of worry, apprehension, fear, distress
- * High levels of anxiety or excessive shyness in children 6-8 yrs may be an early indicator of anxiety disorder

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Anxiety Disorders

- * General anxiety disorder (GAD)
 - * Children/adolescents usually anticipate the worst
 - * Often complain of fatigue, tension, headaches, nausea
- * Panic disorder
 - * Children/adolescents experience unrealistic worry, self consciousness and tension
 - * Recurrent panic attacks

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Anxiety Disorders in Children/Adolescents

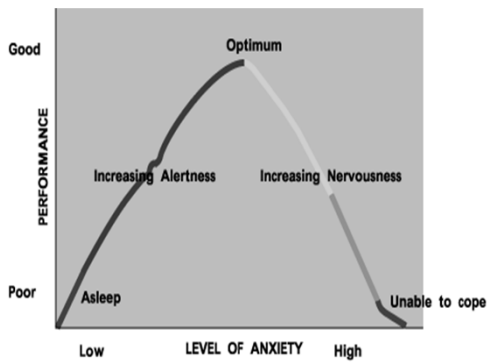
- * OCD
 - * May be aware that symptoms do not make sense and are excessive (adolescents)
 - * Distressed when compulsive habits are prevented (younger children)
 - * Most common obsessions concern dirt, contamination, repeated doubts, arrangement of things, fearful aggressive or murderous impulses, disturbing sexual imagery
 - * Frequent compulsions are repetitive washing of hands, use of tissue to touch things, checking drawers, locks, windows, doors, counting rituals, repeating actions, requesting reassurance

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Anxiety

- * Experienced by everyone
- * General state of apprehension or foreboding
- * Evokes "fight or flight" response
- * Can be positive - improves performance

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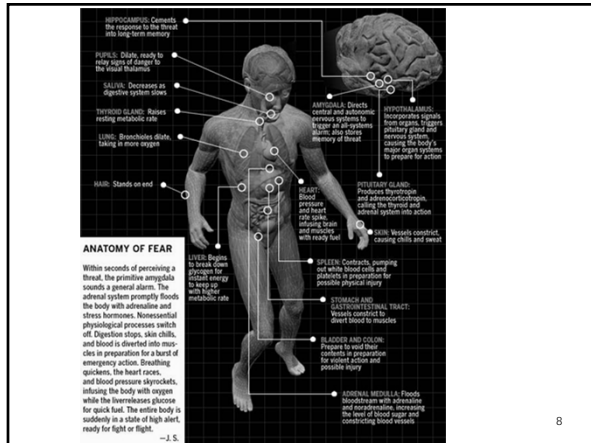


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Fear Pathway

- * Danger is sensed, the brain activates the amygdala
- * Amygdala activates the SNS
- * If no real danger, SNS activation stops
- * Amygdala becomes programmed to remember the "trigger" (hippocampus cements the response) in case the danger re-occurs

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Anxiety Disorders Characteristics

Persistent fear and anxiety
 that
 Occurs too often,
 is
 Too severe,
 and is
 Triggered too easily or lasts too long

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Anxiety Disorders: Symptoms

- * Overwhelming feelings of panic and fear
- * Uncontrollable obsessive thoughts
- * Painful intrusive memories, recurring nightmares
- * Nausea, sweating, muscle tension, other physical reactions
- * Dysfunction of school, job and relationships

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Social Phobia

- * Onset typically occurs between 11-19 yrs of age
- * Selective mutism can occur if onset occurs at <10 yrs of age
- * Onset after the age of 25 is rare
- * Occurs almost 2x more in females vs males

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Social Phobias (SAD)

- * A specific traumatic or humiliating social event appears to be associated with the onset or worsening of the disorder in half of the patients diagnosed with SAD
- * May be caused by the long term effects of not fitting in, being bullied, being rejected or being ignored
- * Negatively biased memories of the past produce fearful anticipation of it reoccurring

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Generalized Anxiety Disorder

Extreme feeling of anxiety in the absence of any clear cause

- * Excessive or ongoing anxiety and worry for at least 6 months about numerous events or activities
- * Difficulty in controlling the worry
- * Significant impairment or distress

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Generalized Anxiety Disorder

Low level anxiety
about
numerous events or activities
that are
excessive and ongoing
and are
difficult to control

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Situational or Stress Related Anxiety

- * Usually self-limiting and rarely requires treatment
- * Address the following:
 - * Is anxiety harmful to the individual?
 - * Anxiety may actually be motivational
 - * If maladaptive behavior or severe distress, then treat
 - * Cognitive behavioral therapy possible?
 - * Risks:benefits of short term antianxiety therapy?

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Treatment of GAD

- * FDA has approved
 - * Venlafaxine, paroxetine, escitalopram
- * TCAs were shown to be as effective as benzodiazepines
- * Choice of drug class should be based on side effect profile, comorbidity and patient's ability to tolerate
- * Antidepressant has delayed onset of antidepressant action

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Treatment of GAD

- * Antidepressants are preferred especially when depression is present and may be better tolerated on the long term if chronic anxiety is present
- * Other SSRIs are used off-label (eg sertraline and fluvoxamine)
- * Dosage of SSRIs are similar to that used for the treatment of depression but higher dosages are used in refractory patients

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Treatment of GAD

- * Serotonin-NE reuptake inhibitors (SNRIs) have been effective
 - * Venlafaxine
 - * Duloxetine
- * Dosages similar as antidepressant dosages
- * TCAs (imipramine, nortriptyline) used off-label but after other agents have failed
 - * Side effect profile is a concern in patients with anxiety
 - * Lower dosages than used in depression

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Treatment of GAD

- * Benzodiazepines
 - * Alprazolam, lorazepam, clorazepate, diazepam
 - * Low potency, long acting agents are preferred
 - * High potency, short acting compounds (eg immediate release formulation of alprazolam) are effective but have higher potential for abuse
 - * Some patients respond with short term (2-6 weeks) treatment but majority will have recurrences if drug is stopped

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Treatment of GAD

- * Benzodiazepine-induced depression
 - * All have been associated with worsening or emergence of depression
 - * Combine with antidepressant or replace with antidepressant
- * Overdose
 - * Relatively safe alone
 - * Dangerous if combined with alcohol, barbiturates, narcotics, other CNS depressants
 - * Flumazenil can be used as a benzodiazepine antagonist

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Treatment of GAD

- * Buspirone (Buspar)
 - * Alternative to antidepressants or benzodiazepines
 - * May be good initial choice for patient who has an elevated risk for benzodiazepine abuse

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Treatment of GAD

- * Buspirone
 - * Approved for treatment of GAD
 - * Lacks sedative, anticonvulsant and muscle relaxant effects
 - * Does not produce dependence and has no abuse potential
 - * Latency of therapeutic action (weeks to days)

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Treatment of GAD

- * Anticonvulsants
 - * Occasionally used off-label when other treatments have failed
 - * Drugs used: gabapentin, tiagabine, and levetiracetam

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Treatment of SAD

- * Antidepressants
 - * Venlafaxine, sertraline, paroxetine are FDA approved
 - * Address co-morbidity of depression and other anxiety disorders
 - * Other SSRIs are often used off-label
 - * Similar efficacy across the class
 - * TCAs have not been shown to be effective for SAD

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Treatment of SAD

- * Benzodiazepines
 - * Efficacy has been demonstrated but data is more limited than that of antidepressants
 - * High potency compounds (alprazolam, clonazepam) are preferred
 - * Use of benzodiazepines prn not recommended due to higher incidence of sedation

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Treatment of SAD

- * Beta blockers
 - * Used off label to treat performance anxiety
 - * Efficacy for SAD is minimal
 - * Peripheral actions (sympatholytic)
 - * Less sedation than benzodiazepines
 - * Dosed 30 min before event
 - * Side effects are mainly extensions of pharmacological actions
 - * Benzodiazepines may worsen performance
 - * Commonly used drugs: propranolol, metoprolol, atenolol, nadolol

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Treatment of Panic Disorder

- * Antidepressants
 - * Paroxetine and sertraline are FDA approved
 - * TCAs and MAOIs have shown efficacy
 - * Address comorbid depression and anxiety
 - * Start low and go slow to avoid initial activation and jitteriness
 - * Patients with panic disorder are highly sensitive to side effects – fear of physical sensations
 - * Other SSRIs are often used off-label

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Treatment of OCD

- * Antidepressants
 - * FDA approved drugs: clomipramine, fluvoxamine, fluoxetine, paroxetine, sertraline
 - * Address comorbid depression and other anxiety disorders
 - * Citalopram and escitalopram used off-label
 - * Venlafaxine used off-label
- * Benzodiazepines not generally effective

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Treatment of OCD

- * Augmentation strategies
 - * Buspirone used as adjunct to SSRIs
 - * Clonazepam used to augment clomipramine or SSRIs
 - * Antipsychotics (haloperidol, pimozide, risperidone, olanzapine, quetiapine) used to augment SSRIs or clomipramine
 - * Clomipramine used to augment SSRIs

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Antianxiety Agents

Generic Name	Trade Name	Daily Dosage (mg/day)
BENZODIAZEPINES		
Chlordiazepoxide	Librium, others	10-100
Diazepam	Valium, others	2-40
Oxazepam	Serax, others	30-120
Clorazepate	Tranxene, others	15-60
Lorazepam	Ativan	1-10
Clonazepam	Klonopin	1-4
Alprazolam	Xanax	0.75-4
AZAPIRONES		
Buspirone	Buspar	15-60
ANTIDEPRESSANTS		
SSRI (e.g., sertraline)	Zoloft	25-250
Venlafaxine	Effexor	75-375
ANTICONVULSANTS		
Valproate	Depakote, other	250-2500
Gabapentin	Neurontin	300-2,400
Pregabalin	Lyrica	150-600

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Antidepressants Used for GAD

Drug	Usual Therapeutic Dosage Range (mg/d)
Citalopram	20-50
Escitalopram	10-20
Fluoxetine	20-80
Fluvoxamine	100-300
Paroxetine	20-50
Paroxetine CR	25-62.5
Sertraline	50-100
Venlafaxine XR	75-300
Imipramine	75-200

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Benzodiazepines

Drug (Active Metabolites)	Tmax (hrs)	T 1/2 (hrs)	Approved Dosage Range (mg/d)
Alprazolam [Xanax]	1-2	12-15	1-4 (GAD) 1-10 (Panic Disorder)
Chlordiazepoxide [Librium] -Desmethyldiazepam -Demoxepam -Demethyldiazepam -Oxazepam	1-4	5-30 18 14-95 40-120 5-15	25-100
Clonazepam [Klonopin]	1-4	18-50	1-4
Clorazepate [Tranzene] -Desmethyldiazepam -Oxazepam	1-2	40-120 5-15	7.5-60
Diazepam [Valium] -Demethyldiazepam -Temazepam -Oxazepam	0.5-2	20-80 40-120 8-15 5-15	2-40
Lorazepam [Ativan]	2-4	10-20	0.5-10
Oxazepam [Serax]	2-4	5-15	30-120

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Antidepressants – Panic Disorder

Drug	Usual Therapeutic Dose Range (mg/d)
Citalopram	20-60
Escitalopram	10-20
Fluoxetine	20-60
Fluvoxamine	100-300
Paroxetine	20-60
Sertraline	50-200
Venlafaxine XR	75-225
Clomipramine	75-250
Imipramine	75-250
Phenelzine	45-90

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