

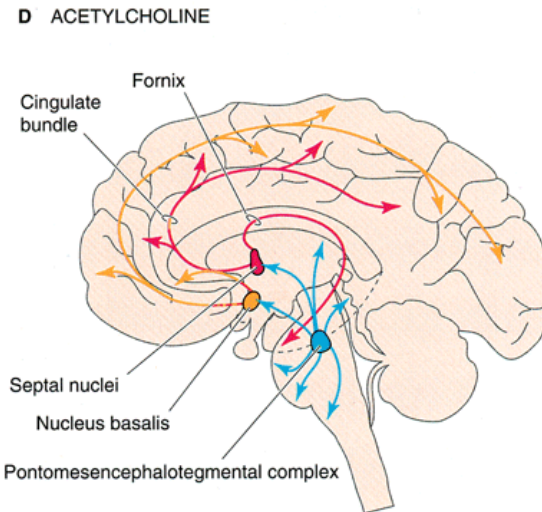
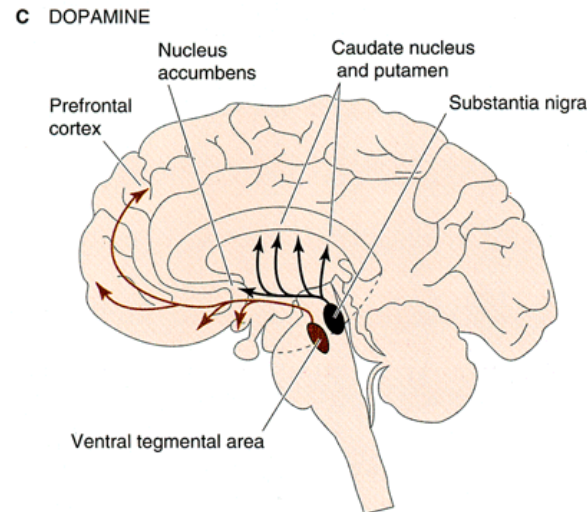
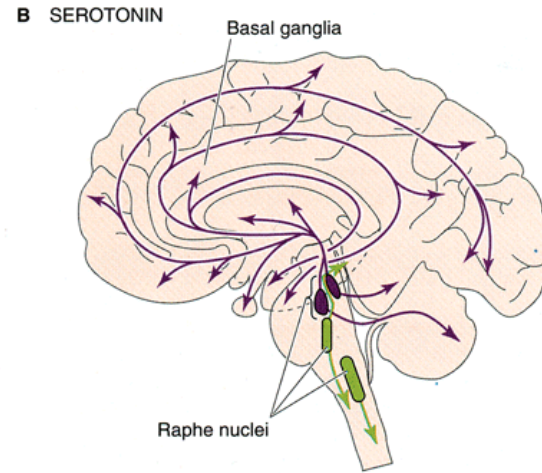
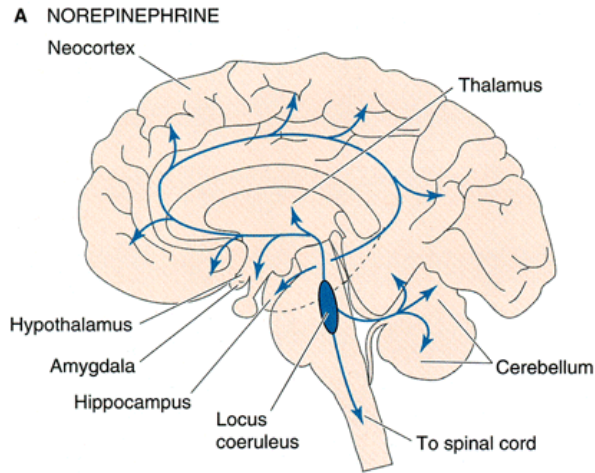
PSYCHIATRY ANXIETY DISORDER

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Emotion

- Feelings are cognitive translations of ambiguous peripheral signals.
- Hypothalamus coordinates the peripheral expression of emotional states
- Amygdala modulates signals (contextual memory).
- Posterior pituitary and circumventricular organs (area postrema, subfornical organ, lamina terminalis, subcommissural organ, median eminence, neurohypophysis) lack blood-brain barrier.
- Hormonal regulation.

Neurotransmitters and pathways



Behavior

- Norepinephrine regulates mood, arousal, cognition.
- Serotonin regulates mood, anxiety, sleep, pain, and cognition.
- Dopamine regulates movement, reward, cognition.
- Acetylcholine regulates memory, arousal, cognition.

Anxiety

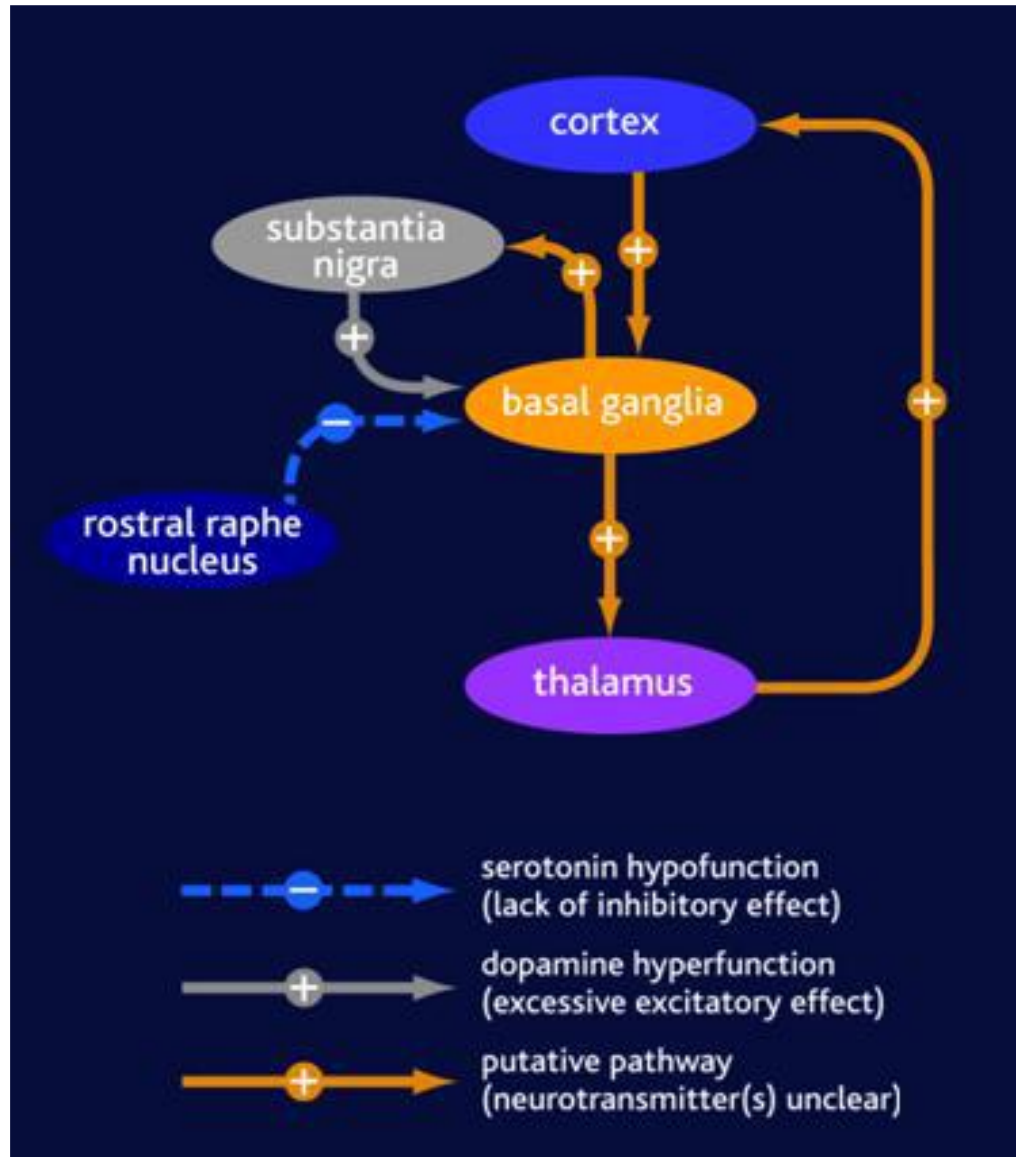
- Symptoms of anxiety are linked to amygdala circuits.
- Noradrenergic model
- Hypersensitive autonomic nervous system.
- Symptoms of peripheral autonomic hyperactivity.
- Locus ceruleus serves as alarm center, activating norepinephrine release and stimulating sympathetic and parasympathetic nervous systems.
- Norepinephrine increases glutamate release (excitogenic).

Anxiety

- GABA receptor model
- GABA is the major inhibitory neurotransmitter.
- Drugs that reduce anxiety and cause sedation target the GABA_A receptor on the post-synaptic membrane.
- The anxiolytic effect of benzodiazepines is related to its binding to the GABA_{A2} receptor; sedation, GABA_{A1}.
- GABA_A and GABA_C receptors are ligand gated channels that form a macromolecule that acts as an inhibitory Cl⁻ channel.
- GABA_B receptors are G-protein linked receptors that interact with K⁺ and Ca²⁺ channels.

Anxiety

- Serotonin model
- High density in raphe nuclei.
- Serotonin activity may reduce norepinephrine activity in the locus ceruleus.
- Serotonin is primarily an inhibitory neurotransmitter.
- Buspirone is a partial 5HT_{1A} agonist.



Anxiety

- Pathologic when out of proportion to severity of the threat
- Pathologic when it interferes with daily living.
- Panic disorder
- 18% of US population
- 60% women
- Defining feature is unexpected and recurrent episodes that develop abruptly and last for 30 minutes (peak in 10).

Anxiety

- There is a constant worry about having additional attacks as well as concern about losing control because of the attacks.
- May result in fear of being in a place where escape is difficult
- Patients with panic disorder with or without agoraphobia have a higher risk of depression and substance abuse.
- 80%, agoraphobia
- Generally, young women
- Heritability, 61%

Anxiety

- Four or more of the following symptoms in an attack:
- Palpitations, diaphoresis, trembling, shortness of breath (“smothering”), choking sensation, chest pain, nausea, hot flushes, fear of losing control, fear of death
- SSRI first choice
- Avoid benzodiazepines as are habit forming
- Do not use if alcohol or drug abuse

Anxiety

- Phobias are common.
- They are characterized by extreme and irrational fear of a specific object or situation.
- Examples include public speaking, closed spaces, animals, and heights.
- Four or more of the following symptoms in an attack:
 - Palpitations, diaphoresis, trembling, shortness of breath (“smothering”), choking sensation, chest pain, nausea, hot flushes, fear of losing control, fear of death
- Addressed by cognitive therapy, desensitization, β -blockers

Anxiety

- Social anxiety disorder (SAD) occurs within the situation and is not a phobia
- Average onset, 13 years of age
- Concern for being embarrassed
- Addressed by cognitive therapy, β -blockers
- Generalized anxiety disorder
- Anxiety about a range of concerns
- “Free floating”
- Prevalence 45%
- Generally affects adolescents, particularly girls.
- Symptoms must be present for at least 6 months.

Anxiety

- Headache; muscle tension; irritability and restlessness or feeling on edge; light headedness; breathless; difficulty concentrating; startle easily; insomnia
- Buspirone (5-HT_{1α} agonist)
- Short-term course of benzodiazepines while drug level of buspirone introduced (to avoid dependency).
- Antidepressants used as well.
- Separation anxiety disorder
- Fear of loss of major attachment figure
- Agoraphobic in adulthood

Anxiety

- Sympathomimetics and 5-HT agonists may precipitate anxiety disorder
 - Amphetamines
 - Cocaine
 - Caffeine
 - LSD
 - MDMA
- May use benzodiazepines in acute situation
 - Bind to GABA_A receptors
 - $\alpha 1$ produce hypnotic effects
 - $\alpha 2$ and/or $\alpha 3$ produce anxiolytic effects

Anxiety

- Obsessive compulsive disorder
- 2-3% of patients
- No sex predilection
- Obsession: Recurrent intrusive thoughts, feelings, or sensations that cause anxiety
- Compulsion: Conscious, standardized, recurrent behavior not realistically connected to desired aim
- Triggered by a stressful situation in 60% of patients.
- Associated with Tourette's.
- Associated with eating disorders as well.

Anxiety

- Unsuccessful coping action for anxiety
- SSRI and desensitization therapy are employed.
- Clomipramine is also utilized.

Anxiety

- Post-traumatic stress disorder can be preceded by acute stress
- In men, trauma usually combat related; in women, abuse.
- Experience continually relived in dreams or recurrent and intrusive thoughts.
- Emotionally detached; restricted affect.
- Anxiety limits daily living.
- Avoid stimuli associated with stressful event
- Marked alterations in arousal and reactivity associated with traumatic event

Anxiety

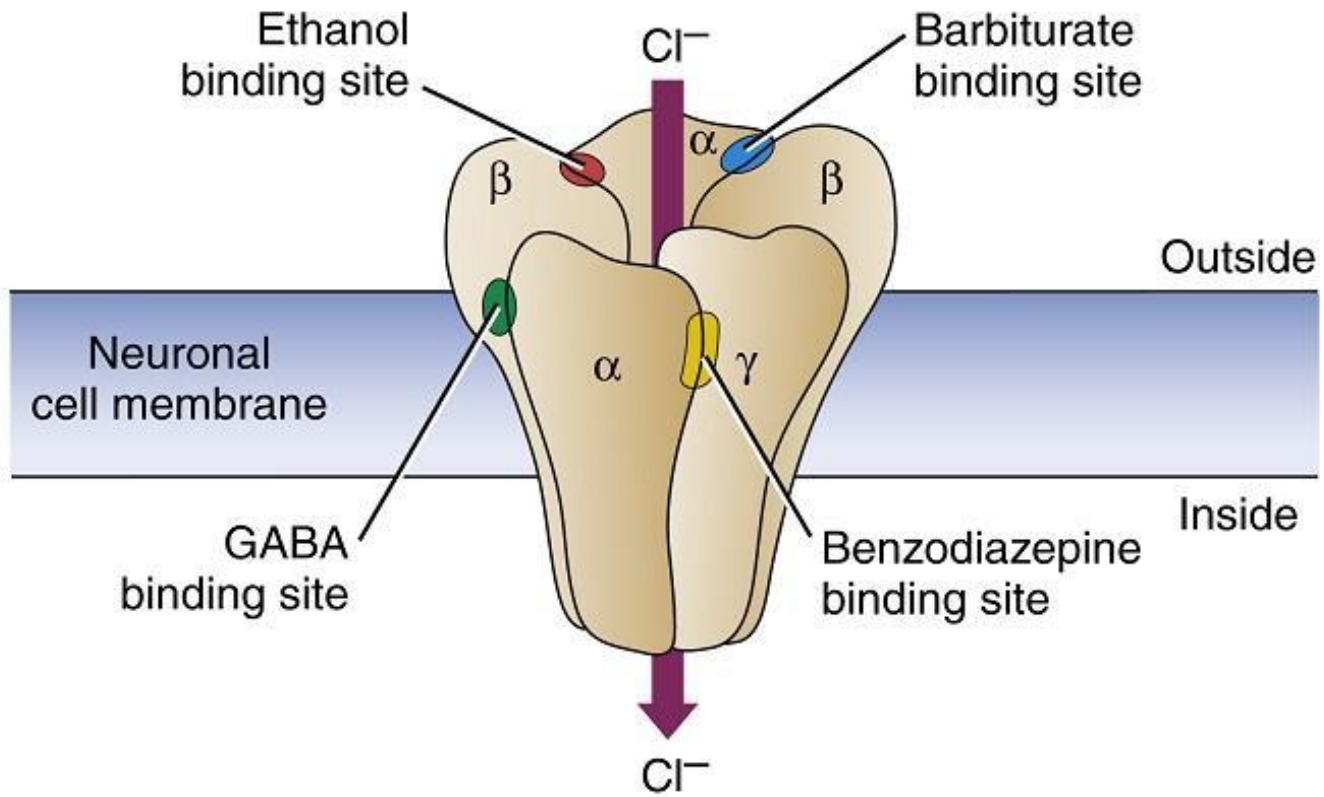
- Acute stress disorder similar presentation but not long-lasting
- 50% evolve into PTSD
- Less association with depression
- Exposure therapy, antidepressants are treatment of choice.
- SSRIs are treatment of choice

Anxiety

- Reactive attachment disorder (RAD) and disinhibited social engagement disorder (DSE) are grounded on attachment theory
- RAD
- Emotionally withdrawn
- Tension with caregivers
- Evident before age 5 in children
- DSE
- Little or no discretion in interacting with unfamiliar adults
- More likely to be single

Therapy

- Relaxation techniques as well as desensitization therapy may be attempted.
- May use β -blocker for acute situations (for example, public speaking).
- SSRI is the first-line treatment for agoraphobia.
- Anxiolytic drugs are not a good choice as the rebound effect that occurs as drug levels fall leads to greater use and reliance on anxiolytics.
- Say no to Xanax.



Benzodiazepine	Onset Timing	Half Life (Parent)	Common Usage
Long Acting			
Chlordiazepoxide	Intermediate	5 - 30 hrs	Amnestic, anticonvulsant, anxiety, insomnia, muscle relaxant, alcohol withdrawal
Diazepam	Rapid	20 - 50 hrs	Anxiety, alcohol withdrawal, certain seizure disorders, muscles relaxant
Intermediate Acting			
Alprazolam	Intermediate	6 - 20 hrs	Anxiety, inc. panic disorder
Clonazepam	Intermediate	18 - 39 hrs	Seizures (prophylactic)
Lorazepam	Rapid / Intermediate	10 - 20 hrs	Anxiety, early insomnia, active seizures surgical amnestic, sedate those who are being mechanically ventilated, alcohol withdrawal
Temazepam	Slow	10 - 20 hrs	Severe insomnia
Short Acting			
Midazolam	Most Rapid (<3 mins)	1 – 4 hrs	Surgical amnestic, acute anxiety
Triazolam	Intermediate	1.5 – 5.5 hrs	Early insomnia, circadian rhythm sleep disorders, acute anxiety
Rapid onset <15 mins, Intermediate 15-30 mins, Slow 30-60 mins * Benzodiazepines may be used for severe insomnia, but also tend to disrupt quality of sleep and have the usual dependency issues			