

Seniors, Gambling and Other Addictions



Presented by
Dr. Craig Strickland
<https://sites.google.com/site/bioedconstrickkat@verizon.net>

Learning Objectives

- List three psychosocial factors that can influence the development of addiction in the elderly
- Summarize basic nervous system components of addiction and reward as applied to gambling and other addictions
- Describe some current & proposed pharmacological treatments of addiction in an older population

Quick Stats (from Casino Alerts)

- American seniors who recently gambled jumped from 20% to 50% between 1974 and 1998 (National Gambling Impact Study)
- 65% of revenue from Atlantic City casinos comes from the elderly
- The elderly are the fastest growing group of gamblers
- One study showed elderly women gambled up to 249% of their monthly income
- 5 to 10% of older gamblers will become addicted, nearly twice as high as younger gamblers

Psychosocial factors (Eric Erikson)

- Eight psychosocial stages
 - Each stage has several elements including:
 - A conflict to be resolved
 - An existential question to be considered
 - A virtue to be achieved
 - A significant relationship is strengthened (if the conflict is resolved)

Psychosocial factors (E. Erikson)

- Stage 8: Integrity versus Despair (Late adulthood, 65 to death)
 - Conflict: Ego integrity versus Despair
 - Existential question: Is it OK to have been Me?
 - Virtue: Wisdom
 - Relationship: Mankind, My Mankind

Psychosocial factors (E. Erikson)

- ◉ Stage 8: Integrity versus Despair (cont.)
- ◉ With successful navigation of this stage
 - Trust in oneself, independence, fully developed self-concept
 - A well-defined role in life with few regrets, no guilt
 - Pride in what has been achieved/created e.g. educational success, children, work, hobbies
 - But what happens if resolution has not been reached?

Psychosocial factors (E. Erikson)

- Stage 8: Integrity versus Despair if not resolved
 - Depression
 - Guilt
 - Embarrassment
 - Hopelessness
 - Disappointment
 - Anger



Other vulnerability factors for Seniors

- ◉ Losing a spouse
- ◉ Loneliness
- ◉ Difficulty handling retirement
- ◉ Health issues (that limit other activities)
- ◉ Financial problems (not related to gambling)
- ◉ Cognitive decline that impairs judgment

Signs which might indicate gambling addiction

- ◉ Unaccounted for blocks of time
- ◉ Unexplained money problems
- ◉ The sudden disappearance or sale of valuables
- ◉ Avoiding friends or relatives
- ◉ Discontinuing activities that were once enjoyed (to spend more time gambling)
- ◉ Lying about time or money spent gambling
- ◉ Changes in personality
- ◉ Signs of neglecting hygiene or personal appearance

Pathological Gambling (PG): A Compulsive Disorder or an Addiction?



Diagnostic and Statistical Manual (DSM) of MH Disorders: PG Classification

- Pathological Gambling (PG) first recognized by the DSM in 1980
- Historically, PG: considered an “impulse control disorder” rather than a behavioral addiction
- Thus, PG was included in impulse control disorders along with pyromania, kleptomania, trichotillomania and intermittent explosive disorder (IED)
- DSM-5 considers PG to be an addiction.

Is there a role for impulsivity within PG diagnosed as a behavioral addiction?

The Case for PG as an Addiction

- Drug dependence and PG share several characteristics
 - Continued engagement in the behavior despite negative consequences
 - Diminished self-control over the behavior
 - Compulsive engagement in the behavior
 - An appetitive urge or craving state prior to engagement in the behavior

The Case for PG as an Addiction

- Drug dependence and PG share several characteristics (cont.)
 - Tolerance and withdrawal (note DSM-5 here)
 - Repeated unsuccessful attempts to cut back or quit
 - Interference with major areas of life functioning



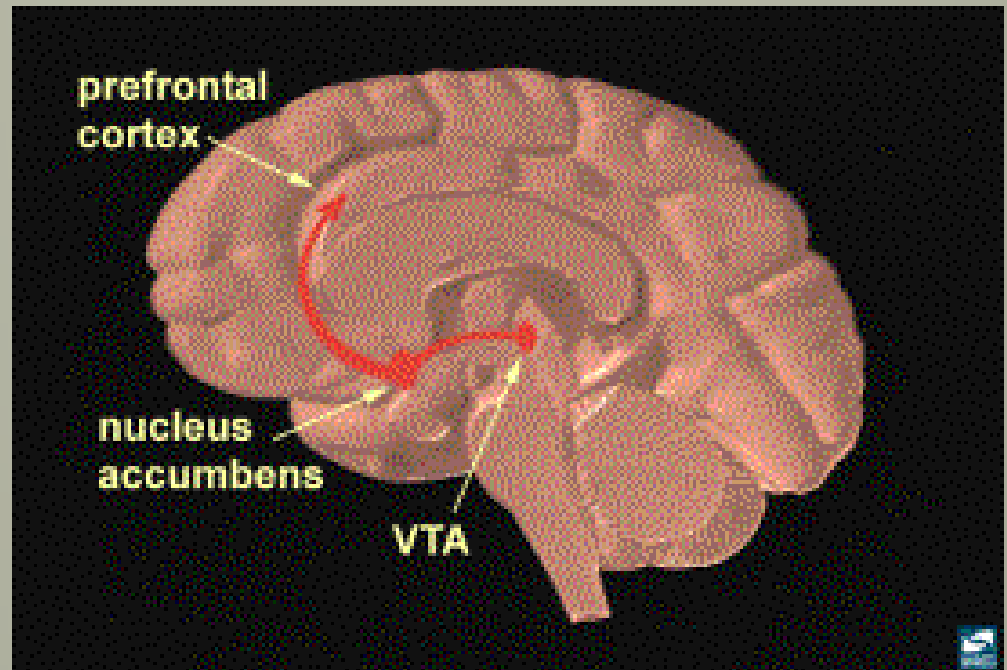
Overview of Critical Brain Areas Researched in Addiction and PG

- The Brain's Reward System
- Frontal Cortex
 - Ventral portion
 - Dorsal portion
- Prefrontal Cortex
- Cingulate Cortex
 - Dorsal Anterior portion
 - Ventral Anterior portion
- Other



The Brain's Reward System (ventral striatum)

- Ventral Tegmental Area (VTA)
- Nucleus Accumbens
- Prefrontal Cortex
- Amygdala
- Specific research



Reward System Research (Potenza, M. 2008)

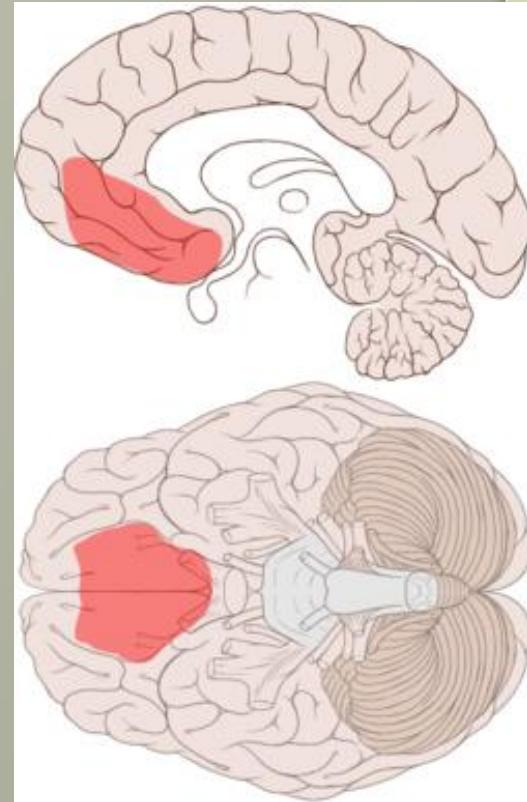
- Those with PG showed decreased activity in the brain's reward system (ventral striatum) when viewing videos of gambling activities
 - Similar result when subjects are those with drug addictions viewing videos of addictive activities
 - Points to hypoactivation as common to both conditions...

Reward System Research (Potenza, M. 2008)

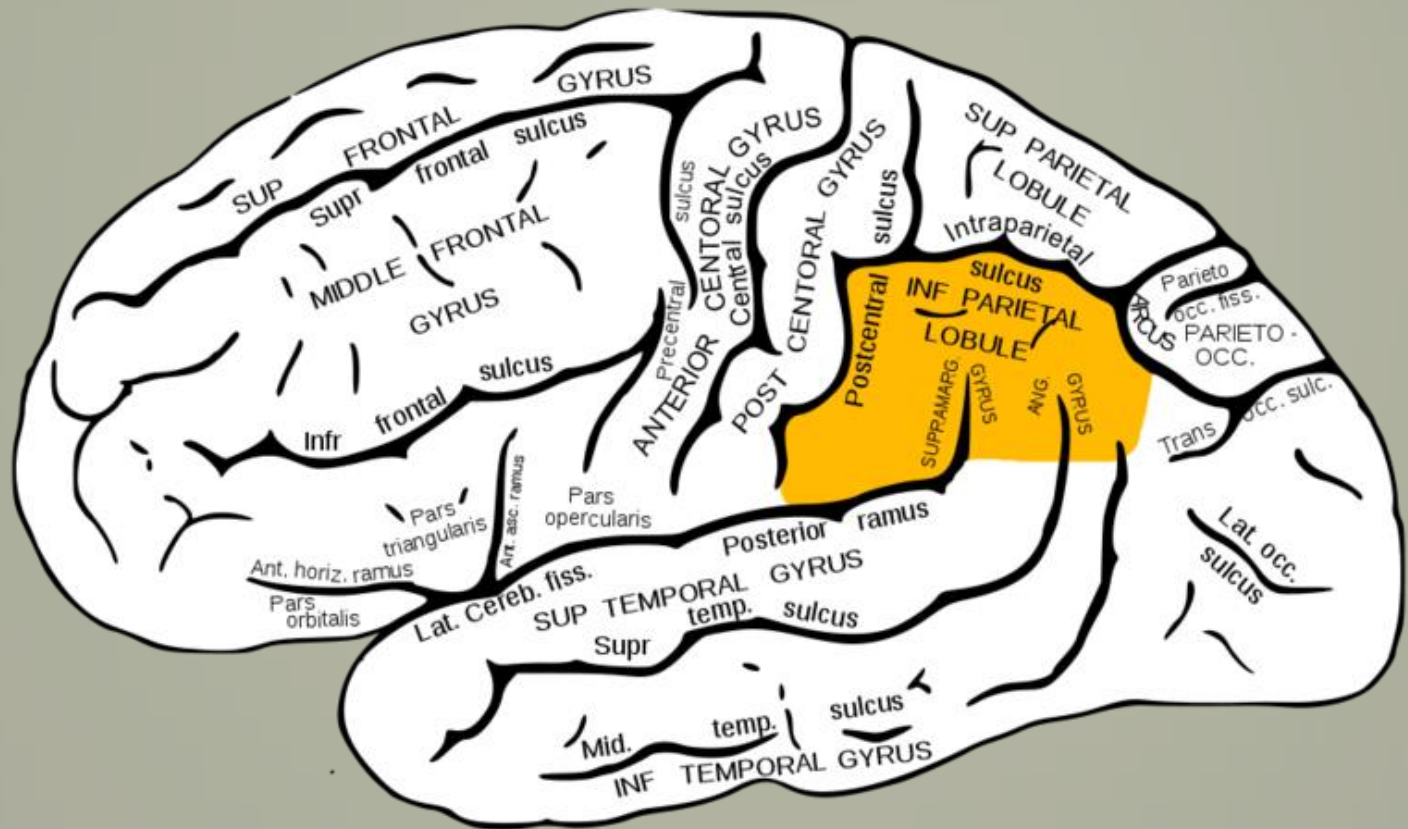
- Those with PG showed decreased activity in the brain's reward system (ventral striatum) when viewing videos of gambling activities
 - But why hypoactivation versus hyperactivation?
 - Is hypoactivation a cause of or a result from addiction?
 - Note: control subjects showed increased activation

Ventromedial Prefrontal Cortex (vmPFC)

- Decrease in brain activity in this and other prefrontal cortical areas in PG and addiction
 - Controls showed increased activity
 - Decrease in activity related to decrease in ability to process monetary gains and losses (e.g. behaviors are “riskier”)
- Research findings on other brain regions tends to be inconsistent



Inferior Parietal Lobule

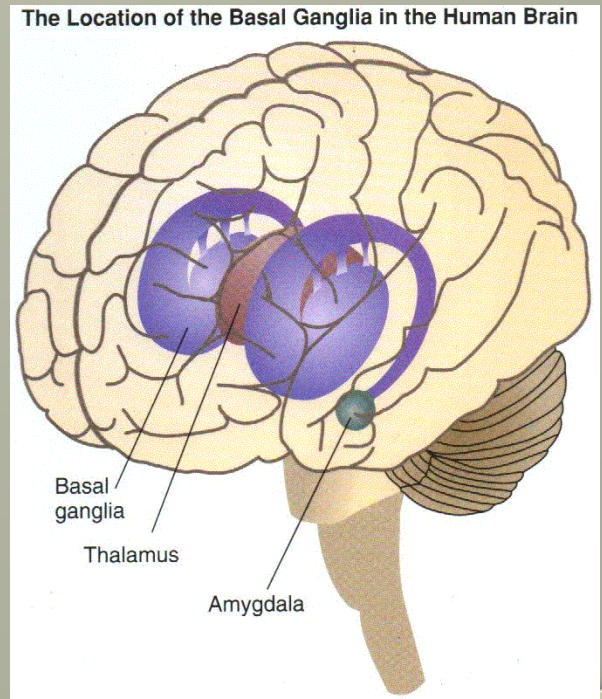


Inferior Parietal Lobule (Potenza, 2008)

- Brain region implicated in the response inhibition component of impulse regulation
 - Compared to controls, there was less activity in this region for both PG and drug-dependent study subjects
 - Not certain whether this impulse dysregulation due to inappropriate use of cues/stimuli (sensory) or behavioral (movement)

So, Impulse Control or Addiction?

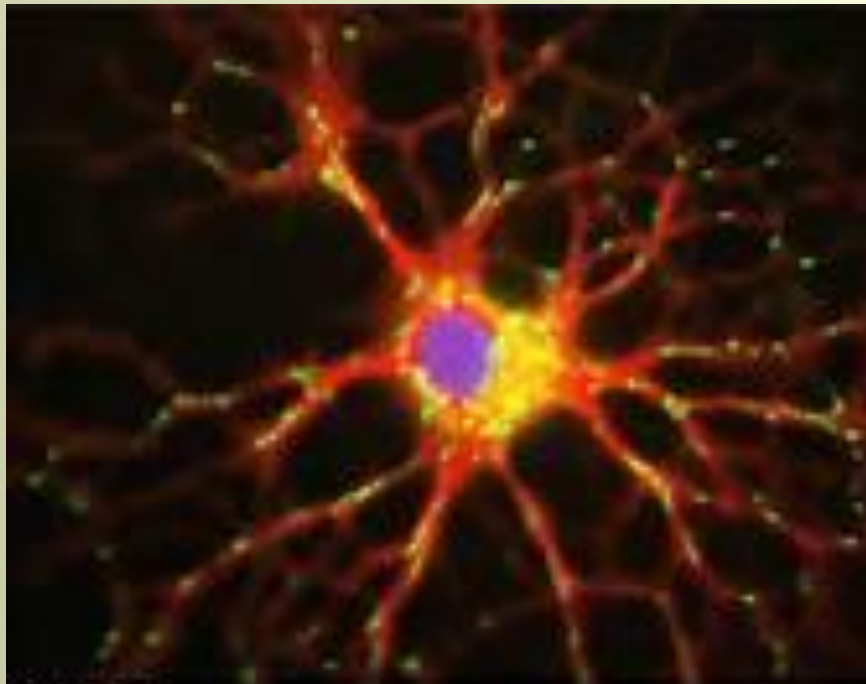
- In symptom provocation studies, those with OCD show increased activity in the frontal cortex, basal ganglia and the thalamus
- Those subjects with PG show decreased activity in these areas



Summary thus far

- Decrease in ventral striatum (reward) system activity
- Decrease in ventro-medial prefrontal cortex activity
- Decrease in parietal lobe activity
- Cause of PG? or tolerance?
- Changes in behavior-reinforcement relationship
- Decrease in impulse regulation/response inhibition

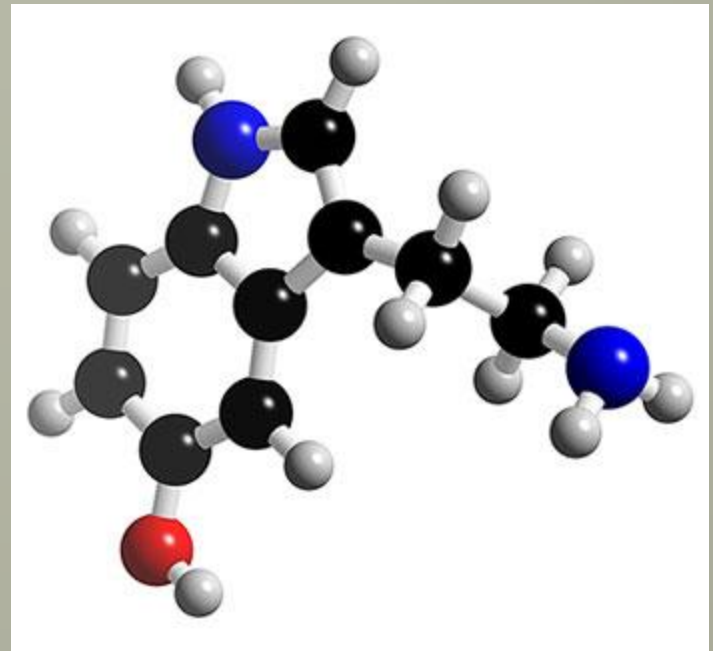
The Neurochemistry of Pathological Gambling



Actin (red)
Mitochondria (green)
DAPI (blue)

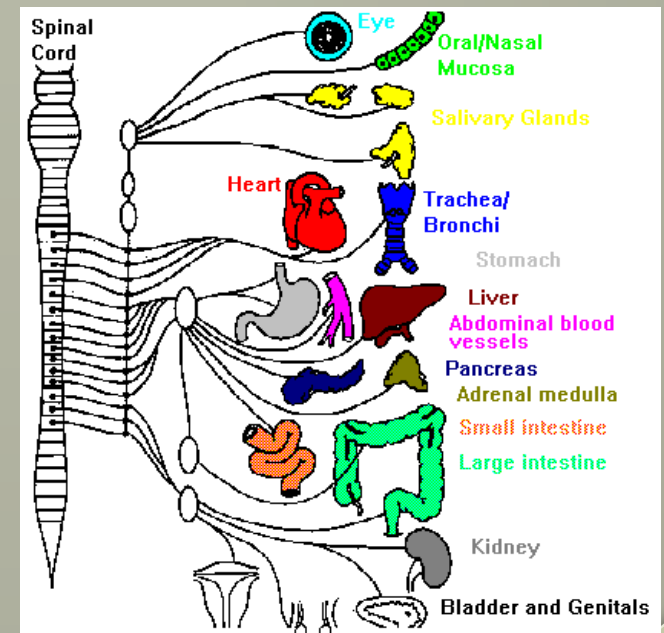
The Chemicals in Question

- Norepinephrine/epinephrine (NE/E also known as noradrenaline/adrenaline)
- Serotonin (5-HT or 5-hydroxytryptamine)
- Dopamine (DA)
- The Opioids
- Glutamate



Norepinephrine/Epinephrine (NE/E)

- Associated with the autonomic nervous system (fight or flight response and general arousal)
 - Gambling & associated behaviors associated with autonomic arousal
 - Men with PG show higher NE/E levels compared with controls

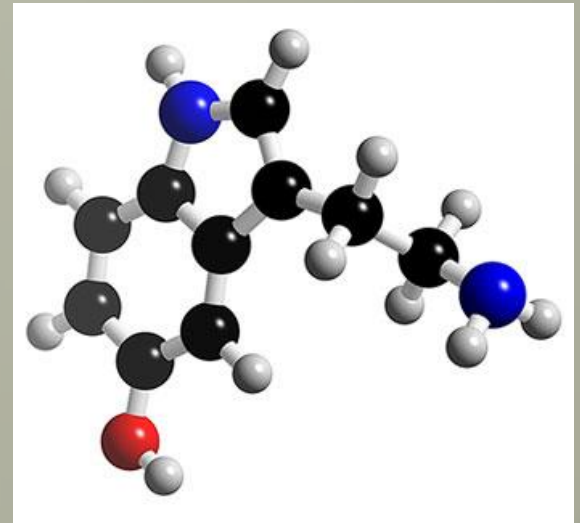


Norepinephrine/Epinephrine (NE/E)

- Medications which block/reduce NE/E levels could have therapeutic effects
 - Clonidine, guanfacine, Inderal, Tenex
 - Interestingly, these meds. used to treat ADHD and perhaps other impulsive disorders
- In the elderly, need to be cautious given the effects of these medications on lowering blood pressure

Serotonin (5-HT)

- Low serotonin levels have been associated with impulsivity
- Those with PG or impulsive aggression show low levels of 5-hydroxy indoleacetic acid (5-HIAA), a serotonin metabolite



Serotonin (5-HT)

- SSRIs (Prozac, Paxil, Zoloft, etc.)
 - Data is somewhat mixed but promising
 - SSRIs may also help with co-occurring anxiety disorders, depression, etc.
 - As a function of aging, density of serotonin receptors decreases in the CNS
 - Thus, these medications could be particularly beneficial for an older population

Dopamine (DA)

- DA strongly associated with reward, reinforcing behaviors and addiction; however DA modulating medications have not been studied in PG
 - Using DA agonists for people with Parkinson's Disease (PD) can initiate impulse control dysfunction including that seen in PG
 - Effect also seen when these drugs are used with people suffering from restless leg syndrome (RLS)

Dopamine (DA)

- In study of subjects with RLS without PG
 - Dopamine agonists increased activity in the brain's reward system (ventral striatum)
 - Note: time course re: ventral striatum activity



Dopamine (DA)

- Other behaviors in addition to PG noted as a result of DA agonist use:
 - Hypersexuality
 - Compulsive shopping & eating
 - Punding (compulsive fascination with and performance of repetitive, mechanical tasks)
- What is needed are studies where DA modulating meds. are directly with those with PG

Opioids

- Opioids implicated in pleasure and reward
- Opioids influence activity in the ventral striatum
- Given this, opioid antagonists were investigated
 - Naltrexone superior to placebo in reducing gambling associated behaviors (some issues with liver functioning however)
 - Nalmefene: also superior to placebo, no liver function issues
 - A family history of alcoholism was strongly associated with a positive drug response

Prescription Drug Abuse in the Elderly



Quick Statistics

- People over 65 comprise 13% of the population but account for 25 to 33% of all medications prescribed
- Several sources state a 17% rate of prescription medication abuse for people over the age of 60
- NIDA reports 1.8 million Americans over 65 may be dependent on Medicare-provided prescriptions

Quick Statistics

- As the Baby Boomer Generation (yeah, includes me) ages, the potential for prescription misuse increases
- Women between ages 60-64 had much higher rates of prescription medication abuse (self-medication)



Risk Factors

- Drug induced behaviors interpreted as “natural” e.g. just old-age, depression, physical disease states
- Isolation enhances non-observation by others
- Long-term and multiple prescriptions can lead to unintentional misuse
- More OTC/supplement use can increase risk of negative drug interactions which may lead to self-medication
- Access to prescriptions is enhanced
- Cognitive decline

Other Factors

- ◉ Retirement (changes in social network)
- ◉ Lack of sense of purpose (Erikson)
- ◉ Loss of spouse/friends
- ◉ Depression
- ◉ Loneliness
- ◉ Confusion
- ◉ Chronic pain
- ◉ Anxiety



Which prescriptions are Abused?

- Benzodiazepines (Valium, Xanax, etc.)
- Hypnotics (Ambien, Sonata, etc.)
- “Pain Killers”: Opiates
- Stimulants
- Osteoarthritis medication
 - Steroids
 - Opiates



What to do? (agingcare.com)

- Stay connected
 - Know what is being taken
 - Know what it is being taken for
- Check that prescribed dose is being taken
- Use of non-opiates when possible for pain management e.g. Neurontin, Cymbalta, Elavil
- Use of non-sedatives for sleep/anxiety (e.g. trazodone or Benadryl for sleep)

What to do? (agingcare.com)

- Encourage minimal use of BZDs and opiates (note: tapering may need medical support)
- Encourage use of non-pharmaceuticals
 - Guided imagery, breathing techniques
 - CBT, Biofeedback, spirituality, etc.
- Have seniors take ALL medications to annual check-ups
- Educate regarding medication & alcohol use

What to do?

- Help decrease anxiety
 - Decrease raw sugars, caffeine, alcohol
 - Use of herbs (Kava Kava, Valerian)
 - St. John's Wort
 - B-vitamins
 - Non-BZD meds: Buspar, SSRIs, Effexor
 - Psychotherapy, support groups, social connections



What to do?

- Help decrease depression
 - Extract of S-adenosyl methionine (SAMe), St. John's Wort, Omega 3's
 - SSRIs, other antidepressants
 - Psychotherapy, support groups, social connections, family support



-
- Thank you for your attention and I wish you the best in your professional and personal lives!

