Psychotropic Medications Explained:

A Practical Overview for Mental Health Providers

OCTOBER 16, 2025

LAUREN M. WILLIAMS, MSN, APRN, ANP-C, PMHNP-BC

Objectives:

- Examine common medications used to treat:
  - Major Depressive Disorder (MDD)
  - Generalized Anxiety Disorder (GAD)
  - Bipolar Disorder
  - Post-Traumatic Stress Disorder (PTSD)
  - Attention-Deficit/Hyperactivity Disorder (ADHD)

- Identify the main classes of medications used to treat common psychiatric disorders: antidepressants (SSRIs, SNRIs), mood stabilizers, antipsychotics, benzodiazepines, and stimulants. Also, understand their primary indications, mechanisms of action, and therapeutic benefits.

- Review potential side effects and risks associated with commonly prescribed psychiatric medications.

- Examine the newest psychotropic medications and emerging treatments of Major Depressive Disorder (MDD), Anxiety disorders, Bipolar Disorder, Post-Traumatic Stress Disorder (PTSD), and Attention-Deficit/Hyperactivity Disorder (ADHD).

Drug Nomenclature:

- Generic Name – fluoxetine (not capitalized)
  - Most states require pharmacists to offer generic when available unless prescriber designates otherwise
- Brand or Trade Name – Prozac (capitalized, symbol R with a circle around it)

(Bloom, 2023)

Pharmacological Classification:

- Drugs are classified based on their mechanism of action (MOA)

- Drugs in a particular classification include only those drugs that have the same or similar MOA (Bloom, 2023)
  - Example: Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs): Inhibit the reuptake of serotonin and norepinephrine from the synapse into the presynaptic neuron

Drugs in a Pharmacological Class Have Similar Attributes:

- FDA Indications
- MOA
- Contraindications and precautions
- Interactions
- Adverse reactions and side effects

Psychotropics:

- Medications used to treat mental health disorders
  - Most commonly, psychotherapeutic medications work by altering the activity of neurotransmitters.
  - Neurotransmitters are the body's chemical messengers, which transmit messages or signals from neuron (nerve cell) to neuron (NIH, 2023)

Five Main Classes of Psychotropic Medications:

- Antidepressants
- Antipsychotics
- Anti-anxiety
- Mood Stabilizers
- Simulants

Treatments of Major Depressive Disorder

Major Depressive Disorder (MDD): Antidepressants

- Neurotransmitters including dopamine, norepinephrine, and serotonin are key players in mood regulation
- Original Monoamine Hypothesis of Depression: Patients with depression are deficient in serotonin, norepinephrine, and dopamine
  - Contemporary research links depression to repeated exposure to stress/chronic stress
  - Stress increases cortisol levels in the brain
- Antidepressants may serve as a stimulus in activating brain- derived neurotrophic factor (BDNF)
  - This could explain why antidepressants can take two weeks or longer to take effect (Liu, et al., 2017; Wegmann, 2021)

Major Depressive Disorder (MDD): Antidepressants

- Antidepressant Medications:
  - Selective Serotonin Reuptake Inhibitors (SSRIs)
  - Serotonin Norepinephrine Reuptake Inhibitors (SNRIs)
  - Atypical antidepressants
    - Tricyclic Antidepressants (TCAs)
    - Monoamine Oxidase Inhibitors (MAOIs)
    - Hybrids

Major Depressive Disorder (MDD): Antidepressants – SSRIs

- Examples include: fluoxetine (Prozac), fluvoxamine (Luvox), paroxetine (Paxil), sertraline (Zoloft), citalopram (Celexa), escitalopram (Lexapro)
- Mechanism of Action (MOA): Block the reuptake of serotonin
  - Well-tolerated
  - Safer in overdose
- Side Effects:
  - Often transient (with exception of weight gain)
  - Activation, nausea, insomnia, sexual dysfunction
    - Often anorgasmia, impotence is rare
  - Late onset side effects: Apathy and decreased spontaneity
- Monitor for "serotonin syndrome" (hyperthermia, muscle rigidity, cardiovascular collapse)
- Also used to treat obsessive compulsive disorders, general and social anxiety disorders, panic disorder, post-traumatic stress disorder, premenstrual dysphoric disorder, and bulimia nervosa (Bloom, 2023; Preston & Johnson, 2019; Wegmann, 2021)

Major Depressive Disorder (MDD): Antidepressants – SNRIs

- Examples include: duloxetine (Cymbalta), venlafaxine (Effexor), desvenlafaxine (Pristiq), and levomilnacipran (Fetzima)
- MOA: Block the reuptake of serotonin and norepinephrine
- Side Effects:
  - Less sexual dysfunction compared to SSRIs
  - May increase blood pressure
- Duloxetine may be beneficial in patients who have co-occurring pain disorders (Wegmann, 2021)

Major Depressive Disorder (MDD): Antidepressants – Atypical

- Bupropion (Wellbutrin)
  - MOA: Blocks reuptake of norepinephrine and dopamine
  - May be added to SSRI as adjunctive treatment or to offset sexual side effects
  - FDA approved for smoking cessation
- Remeron (Mirtazapine)
  - MOA: Works indirectly on norepinephrine and serotonin
  - Beneficial for sleep, anxiety, and increasing appetite
  - May cause weight gain (Wegmann, 2021)

Major Depressive Disorder (MDD): Antidepressants – TCAs

- Examples include: amitriptyline, clomipramine, doxepin, imipramine, trimipramine, desipramine, nortriptyline
  - MOA: Primarily block reuptake of serotonin and norepinephrine
  - Block acetylcholine and histamine receptors
  - Inhibit sodium and calcium channels

- Second-line treatment due to less tolerable side effects and toxicity in overdose (Hirsh & Birnbaum, 2023)

Major Depressive Disorder (MDD): Antidepressants – MAOIs

- Examples include: tranylcypromine (Parnate), phenelzine (Nardil), selegiline (Emsam)
  - MOA: Inhibit the enzyme monoamine oxidase, which breaks down serotonin, dopamine and norepinephrine
  - Most effective of the antidepressants, particularly for atypical depression
  - Prescribed as last resort due to severe side effects such as hypertensive crisis, food and drug interactions, potentially fatal drug-drug interactions, and withdrawal symptoms (Wegmann, 2021)

Major Depressive Disorder (MDD): Antidepressants – Hybrid Antidepressants

- Vilazodone (Viibryd)
  - MOA: Similar action of the SSRIs with added anxiolytic actions of buspirone (Buspar)
  - Fewer sexual side effects and less incidence of weight gain

- Vortioxetine (Trintellix)
  - MOA: Similar to Viibryd
  - Fewer sexual side effects and less incidence of weight gain (Wegmann, 2021)

Major Depressive Disorder (MDD): Additional Augmentation Strategies

- Lithium (Eskalith)
  - Primarily used in treatment of bipolar disorder
  - Effective in treatment resistant depression and reducing suicidal thinking
- Stimulants
- Liothyronine (Cytomel)
- Antipsychotics
  - Aripiprazole (Abilify), olanzapine/fluoxetine (Symbax), quetiapine (Seroquel), brexpiprazole (Rexulti), and cariprazine (Vraylar), most recently approved in 2021 (Heldt, 2017)

Major Depressive Disorder (MDD): Updates in Depression Treatment

- Esketamine (Spravato) – nasal spray (isomer of ketamine)
  - Approved in 2019 as adjunctive treatment in combination with antidepressants for treatment-resistant depression (TRD)
  - Schedule III controlled substance
  - Medication is self-administered intranasally under supervision of a provider
  - Patients must be monitored for 2 hours due to potential for increase in blood pressure
  - Patients are not permitted to drive on the day medication is administered
  - Benefits are immediate and maintained with continual use
  - Doses per week decrease as you get further into treatment. Maintenance is one dose every 1-2 weeks (Wegmann, 2021)

Major Depressive Disorder (MDD): Updates in Depression Treatment

- Intravenous Ketamine
  - General anesthetic, NMDA receptor antagonist
  - Used off-label for TRD
  - Demonstrated effectiveness in multiple randomized controlled trials
  - Three infusions week one, two infusions week two, then once per week for three weeks
  - Dosed monthly for maintenance (Wegmann, 2021)

Major Depressive Disorder (MDD): Updates in Depression Treatment

- Dextromethorphan-Bupropion (Auvelity):
  - MOA: Norepinephrine-dopamine reuptake inhibitor and NMDA receptor antagonist
  - Approved in 2022 for treatment of MDD in adults
  - May be difficult to get covered by insurance (UpToDate, n.d.)

Major Depressive Disorder (MDD): Updates in Depression Treatment

- Cariprazine (Vraylar)
  - Antipsychotic with dual action at D2 and D3 receptors
  - Previously approved for treatment of schizophrenia and all poles of bipolar
  - 2022 received FDA approval as adjunctive treatment to antidepressants for treatment of MDD
  - Low risk of metabolic and motor side effects (Sachs et al., 2023)

Treatments of Anxiety Disorders

Anxiety Disorders

- Most Common Anxiety Disorders
  - Generalized anxiety disorder (GAD)
  - Social anxiety disorder (SAD)
  - Panic disorder
  - Phobia related disorders

- Antidepressants: SSRIs and SNRIs are considered first-line treatment when considering pharmacotherapy (NIH, 2024)

Anxiety Disorders: Treatments

- Benzodiazepines
  - Examples include: lorazepam (Ativan), clonazepam (Klonopin), alprazolam (Xanax), temazepam (Restoril)
  - MOA: Work on GABA receptor
  - Used effectively short-term or while titrating antidepressant
  - Not recommended for long-term use due to potential for tolerance, abuse addiction, and worsening symptoms
  - Side effects: Sedation, cognitive and memory impairment, dizziness, and falls in elderly (Heldt, 2017)
- Buspirone (Buspar)
  - MOA: Serotonin receptor partial agonist
  - Does not work on GABA receptors, thus, not sedating
  - Minimal to no withdrawal effects or addiction potential
  - Counsel patients it does not work immediately and may take several weeks (Heldt, 2017)

Anxiety Disorders: Treatments

- Propranolol (Inderal)
  - MOA: Beta Blocker that crosses blood brain barrier
  - Used to treat hypertension, glaucoma and migraine headaches
  - Helpful in treating anxiety conditions, specifically performance anxiety (off-label)
- Gabapentin (Neurontin)
  - MOA: Anticonvulsant, similar to GABA, blocks calcium channels
  - Schedule V controlled substance
  - Works to reduce anxiety by acting as an anxiolytic (off-label)
  - Similar relief to benzodiazepines, with less risk of tolerance and abuse (Heldt, 2017)
- Hydroxyzine (Vistaril or Atarax)
  - MOA: Antihistamine
  - Used off-label to treat anxiety
  - Side effect of sedation (Heldt, 2017)

Treatments of Bipolar Disorder

Bipolar Disorders: Mood Stabilizers

- Lithium (Eskalith)
  - MOA: widely unknown
  - Single most effective medication available for treatment and prevention of both manic and depressive episodes in bipolar
  - One of two medications (clozapine) proven to have anti-suicide effect
  - Not used first- line due to extremely narrow therapeutic window
  - Harsh side effect profile that may permanently impact multiple organs in the body
  - Teratogenic in pregnancy (Wegmann, 2021)

Bipolar Disorders: Anticonvulsants

- Examples include: divalproex (Depakote), lamotrigine (Lamictal), carbamazepine (Tegretol), and topiramate (Topamax)
- Divalproex (Depakote)
  - MOA: inhibits sodium channels, and increases GABA
  - Extremely effective in treating and preventing manic episodes
- Lamotrigine (Lamictal)
  - MOA: widely unknown, thought to inhibit sodium channels
  - Effective in treatment and prevention of bipolar depression, with little effect on mania
  - Well-tolerated
  - Risk of Steven-Johnson Syndrome
    - Life threatening dermatological disease that can result in sloughing of epidermis (medical emergency)
    - To mitigate start dose low and increase slowly (Bloom & Amber, 2017; Wegmann, 2021)

Bipolar Disorders: Anticonvulsants (cont'd)

- Carbamazepine (Tegretol)
  - MOA: Inhibits sodium channels and impacts GABA
  - Effective in treatment and prevention of manic episodes
  - High incidence of drug-drug interactions
  - Not recommended in pregnancy
  - May cause Stevens-Johnson Syndrome (Wegmann, 2021)

Bipolar Disorders: Antipsychotics

- Examples include: Olanzapine (Zyprexa), quetiapine (Seroquel), risperidone (Risperdal), paliperidone (Invega), ziprasidone (Geodon), lurasidone (Latuda), aripiprazole (Abilify), cariprazine (Vraylar), and clozapine (Clozaril)
  - MOA: Block dopamine and select serotonin receptors
  - Mainstay of treatment for schizophrenia
  - May be sedating
  - Metabolic side effects: weight gain, hyperlipidemia, hyperglycemia
  - Motor side effects such as Parkinson like symptoms, akathisia, tardive dyskinesia, and dystonia (Wegmann, 2021)

Bipolar Disorders: Updates in Bipolar Treatment

- Antipsychotic: Lumateperone (Caplyta)
  - Approved in 2020 for the treatment of schizophrenia and bipolar depressive episodes
  - Lower risk of weight gain and motor side effects

Treatments of Post-Traumatic Stress Disorder (PTSD)

Post-Traumatic Stress Disorder (PTSD)

- Trauma – Focused Psychotherapy is still the mainstay of treatment
- Medications are used to target symptoms such as nightmares and hyperarousal
- Antidepressants
  - Examples include: SSRIs-paroxetine (Paxil) and sertraline (Zoloft) are FDA approved to treat PTSD
- Mood Stabilizers
  - Potential benefit with the use of mood stabilizers in conjunction with other treatment modalities
- Atypical antipsychotics
  - May assist in reducing flashbacks, anxiety, and improving sleep

Post-Traumatic Stress Disorder (PTSD) (cont'd)

- Benzodiazepines
  - Commonly prescribed, although benefits are not well proven clinically
  - May be used at low doses to assist in sleep
  - Caution advised due to high prevalence of co-occurring substance use disorders in this population

- Steroids
  - It is hypothesized people who have lower cortisol levels post trauma may benefit from cortisone treatment immediately after trauma

- MDMA and ketamine
  - These drugs have psychedelic properties that may reduce anxiety, improve relaxation, promote feelings of euphoria and well-being
  - May assist in tolerance of exposure therapy (Wegmann, 2021)

Treatments of Attention-Deficit Hyperactivity Disorder (ADHD)

Attention-Deficit Hyperactivity Disorder (ADHD)

- Attention-deficit/hyperactivity disorder (ADHD) is the most commonly diagnosed behavioral disorder in children, and the numbers are expected to rise
  - The CDC reported that in 2022, over 7 million (11.4%) U.S. children ages 3–17 years were diagnosed with ADHD, an increase of 1 million compared to 2016
    - The elevated numbers aren't limited to children.
    - According to a 2021 report in the Journal of Managed Care & Specialty Pharmacy, 8.7 million adults in the U.S. have ADHD
- Psychostimulants
  - Two main classes: methylphenidate (MPH) and amphetamine (AMP)

Attention-Deficit Hyperactivity Disorder (ADHD)

- Psychostimulants
  - Two main classes: methylphenidate (MPH) and amphetamine (AMP)
  - Both are delivered into the body and reach the brain through various delivery mechanisms
    - Immediate- release
    - Osmotic-release
    - Time- release
    - Transdermal system
    - Pro- drug release

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): Psychostimulants

- Immediate- Release Delivery Mechanism
  - Examples include: Ritalin, Focalin, Dexedrine, and Adderall
  - Pill formulation
  - Absorbed rapidly in 30 minutes
  - Peak serum levels attained in 60-90 minutes
  - Last for about 2-3 hours
  - Dose at least three times per day

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): Psychostimulants

- Osmotic-Release
  - Referred to as osmotic- release oral system (OROS)
  - Example: Concerta (only available as MPH)
  - MOA: Osmotic pump system
  - Comprised of an outer layer immediate-release drug overcoat methylphenidate, with an inner core that releases methylphenidate at a steady rate over 6-8 hours via an osmotic pump
  - Taken once daily, but mimics three times per day dosing with immediate release
  - Due to slow- release mechanism, Concerta is good for patients who need greater control of symptoms later in the day compared to morning hours

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): Psychostimulants

- Time-Release
  - Available as MPH and AMP
  - Examples include: Ritalin LA, Focalin XR, Metadate CD, and Adderall XR
  - Capsule formulation containing the active ingredient in form of coated beads
    - Beads dissolve at different times over 8 hours, making the medication time-released
    - Capsules can be opened and sprinkled on food

  - Also available in liquid formulations
    - Example includes: Quillivant XR (methylphenidate ER suspension)
    - Similar to long-acting Ritalin, but in liquid from making dosage titration easier
    - Great for children who have trouble swallowing solid formulations

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): Psychostimulants

- Transdermal
  - Available as MPH
  - Example: Daytrana patch
  - Patch applied each morning and removed at 5pm to allow drug to eliminate from body
  - May cause permanent depigmented skin

- Pro-Drug
  - Available as AMP
  - Examples include: Vyvanse (the only pro-drug available)
  - MOA: Similar to Adderall XR, however, Adderall can be open, crushed and snorted
  - Vyvanse remains inactive until swallowed and absorbed in stomach. Once absorbed, it converts to active ingredient dAMP which then enters bloodstream

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): Psychostimulants

- Stimulant Side Effects
  - Generally well tolerated, even with long-term use
  - Common side effects: loss of appetite, weight loss, headache, nausea, anxiety, irritability, motor tics, muscle tension, and insomnia
  - Abuse potential due to increase in dopamine in the reward center of brain
    - This is rare when taken appropriately in pill or capsule form

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): Non-Stimulant Options

- Antidepressants
  - Bupropion (Wellbutrin)
    - MOA: Enhance actions of norepinephrine and dopamine in the prefrontal cortex
    - Simulants are still superior in clinical trials
    - May be used to treat co-occurring depression
    - Not a controlled substance
  - Atomoxetine (Strattera)
    - MOA: Norepinephrine reuptake inhibitor
    - Black box warning pertaining to risk of suicide in children and adolescents
    - Simulants are still superior in clinical trials
    - No long- term safety data available in children
    - Has been linked to liver damage

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): Non-Stimulant Options

- Alpha-2 Agonists
  - Guanfacine ER (Intuniv)
    - MOA: Antihypertensive medication that works on prefrontal cortex to improve executive function
    - Used to treat anxiety, aggression, irritability, tics, and Tourette's syndrome
    - Approved to treat children/adolescents (ages 6-17)
    - Side effects: often mild, but may be related to low blood pressure (headache, nausea, drowsy, and changes in cardiac rhythm)

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): New Treatments in ADHD

- Mydayis (AMP)
  - Similar to Adderall XR, but has a longer duration of 16-hours compared to 12 with Adderall
- Aptensio XR (MPH)
  - Similar to Concerta, but more rapid onset
- Jornay PM (MPH)
  - Taken at bedtime, and starts working 8-10 hours later
  - Good for children who have trouble remembering to take medication in the morning, and those who struggle with symptom management early in the morning

(Wegmann, 2021)

Attention-Deficit Hyperactivity Disorder (ADHD): New Treatments in ADHD

- Qelbree
  - Approved in 2020 for patients ages 6 and older
  - Non-stimulant option that inhibits the reuptake of serotonin and norepinephrine
  - Black- box warning for suicidal thoughts and behaviors
  - Side effect of sedation, but generally well- tolerated

(Nasser et al., 2022)

References

References

Anxiety Disorders. (2024). *National Institute of Mental Health*. Retrieved December 6, 2024 from https://www.nimh.nih.gov/health/topics/anxiety-disorders

Azhar Y, Din AU. Brexanolone. [Updated 2023 Jun 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from https://www.ncbi.nlm.nih.gov/books/NBK541054/

Bloom, A. (2023). *Psychopharmacology for Mental Health Professionals.* Eau Claire, WI: Pesi Inc.

Bloom, R., & Amber, K. T. (2017). Identifying the incidence of rash, Stevens-Johnson syndrome and toxic epidermal necrolysis in patients taking lamotrigine: a systematic review of 122 randomized controlled trials. *Anais brasileiros de dermatologia*, *92*(1), 139–141. https://doi.org/10.1590/abd1806-4841.20175070

Dextromethorphan and bupropion: Drug information. (n.d.). *UpToDate*. Retrieved December, 6, 2023 from https://www.uptodate.com/contents/dextromethorphan-and-bupropion-drug-information

Heldt, J. (2017). *Memorable Psychopharmacology.* Lexington, Ky: CreateSpace Independent Publishing.

References

Hirsh, M., & Birnbaum, R. J. (2023). Tricyclic and tetracyclic drugs: Pharmacology, administration, and side effects. *UpToDate*. Retrieved December 6, 2024, from https://www.uptodate.com/contents/tricyclic-and-tetracyclic-drugs-pharmacology-administration-and-side-effects

Liu, B., Liu, J., Wang, M., Zhang, Y., & Li, L. (2017). From Serotonin to Neuroplasticity: Evolvement of Theories for Major Depressive Disorder. *Frontiers in Cellular Neuroscience*, *11*, 264558. https://doi.org/10.3389/fncel.2017.00305

Nasser, A., Hull, J. T., Chaturvedi, S. A., Liranso, T., Odebo, O., Kosheleff, A. R., Fry, N., Cutler, A. J., Rubin, J., Schwabe, S., & Childress, A. (2022). A Phase III, Randomized, Double-Blind, Placebo-Controlled Trial Assessing the Efficacy and Safety of Viloxazine Extended-Release Capsules in Adults with Attention Deficit/Hyperactivity Disorder. *CNS drugs*, *36*(8), 897–915. https://doi.org/10.1007/s40263-022-00938-w

Sachs, G. S., Yeung, P. P., Rekeda, L., Khan, A., Adams, J. L., & Fava, M. (2023). Adjunctive Cariprazine for the Treatment of Patients With Major Depressive Disorder: A Randomized, Double-Blind, Placebo-Controlled Phase 3 Study. *The American journal of psychiatry*, *180*(3), 241–251. https://doi.org/10.1176/appi.ajp.20220504

Wegmann, J. (2021). *Psychopharmacology: Straight Talk on Medications*. (4th ed.). Eau Claire, WI: Peshi Publishing