

- a. **Provide a 3-5 sentence paraphrased summary of the assigned neurotransmitter purpose and function:** Dopamine is a monoamine neurotransmitter often known as the brain's "feel-good" chemical because of the pleasure and reward sensations it helps produce. It plays a key role in the brain's reward system by influencing how we experience motivation, emotion, and satisfaction. Most of its activity occurs in the prefrontal cortex, where it supports essential functions such as movement, coordination, balance, decision-making, attention, and organized thinking. Because of its broad influence on both physical and cognitive functioning, dopamine is considered one of the most vital neurotransmitters in the nervous system.
- b. **Link the assigned neurotransmitter to a psychiatric diagnosis or diagnoses:** Dopamine is linked to many mental and physical diseases such as Parkinson's disease (PD), schizophrenia, Tourette's syndrome, drug addiction, learning and memory deficits, autism, and attention deficit hyperactivity syndrome (Tian, 2024). This discussion will be focused on Parkinson's disease, one of the major diagnoses related to dopamine insufficiency.
- c. **Discuss associated symptoms of the selected diagnosis or diagnoses. Determine if each symptom is related to an excess or deficiency in the neurotransmitter:** In the discussion, focus is kept on Parkinson's disease. Parkinson's disease is a neurodegenerative disease caused by lack of dopamine due to cell death that are responsible for producing it. Parkinson's disease is common condition, with millions of people affected worldwide. Early symptoms include constipation (the most common symptom), acting out dreams during the rapid eye movement phase of sleep, hyposmia, asymmetric vague shoulder pain, or depression (Bloem et al 2021). In addition, people with Parkinson's have tremors, a typical "pill rolling" movement of thumb and forefinger is a prominent sign, rigidity or muscle stiffness short jerky movements "cogwheel" rigidity, bradykinesia leading to a "masked facial" experience. All these symptoms are caused by lack of dopamine. Since dopamine is implicated in regulating movement, motivation, memory, other physiological processes, therefore the loss of dopaminergic neurons leads to low dopamine levels causing motor impairment, thus manifesting tremors, rigidity, bradykinesia (Ramesh & Arachchige, 2023).
- d. **Identify a drug class that treats the disorder associated with the assigned neurotransmitter. Discuss whether recommended medications in this class are agonists or antagonists and explain how the medication influences the clinical signs and symptoms (i.e., treats the diagnosis) by impacting the neurotransmitter's activity:** Medications to treat PD fall into three categories:
1. Drugs that increase the level of dopamine- like Levodopa
 2. Drugs that affect other neurotransmitters in the body to ease some of the symptoms of the disease- anticholinergic drugs
 3. Medications that help control the non-motor symptoms of the disease, or the symptoms that don't affect movement- antidepressants (NINDS,2025).

In addition to dopamine agonists are also used to treat Parkinson's like Mirapex, ropinirole, Apomorphine Hydrochloride subcutaneous injection, Rotigotine (Neupro)