

**Mastering Your Anxiety
in Parkinson's Disease**

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**Anxiety is common in persons
with Parkinson's disease**



Prevalence of Anxiety in PD

- Higher rates than the general population, other medical illnesses, and other parkinsonian syndromes
- Higher rates of anxiety can be present prior to developing motor symptoms and the initial diagnosis of PD
- 2x as likely to have an anxiety disorder 20 years before the onset

Clinical Correlates

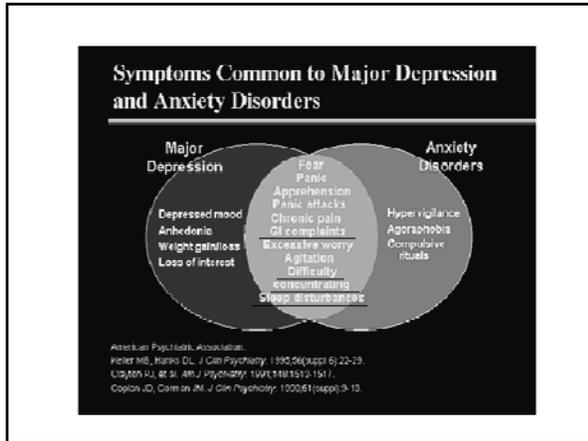
- Lifetime prevalence of panic and "panic-like" disorders is higher in first degree relatives of PD patients with panic disorder
- More likely to have motor fluctuations, younger age, female gender, antidepressant use, previous history of an anxiety disorder or a depressive disorder, and family psychiatric history
- Those with anxiety during motor fluctuations are more likely to be female, have longer PD duration, younger age of onset, higher daily levodopa dose, and more motor complications from PD medications such as dyskinesias and on/off fluctuations
- PD-related anxiety is associated with later age of onset

Prevalence of Anxiety in PD

- Prevalence of at least one anxiety disorder ranges from 25% to 50%
- Lifetime prevalence is almost 50%
- Subclinical levels of anxiety can be present in another 11-22%
- These may be underestimates as many may under-report or deny psychological symptoms, instead emphasizing the physical symptoms

Common Comorbidities

- About 12% have more than one anxiety disorder subtype
- Concurrent depression ranges from 14-55%
- Symptoms of depression and anxiety can overlap which makes it difficult to attribute the symptom to one condition and not the other
- Motor symptoms can also overlap with anxiety symptoms



Impact of Anxiety

- Can influence overall well being, health satisfaction, and quality of interactions with others
- Greater problems with mobility, activities of daily living, social isolation, stigma, and emotional well being
- Can negatively effect cognition
- Anxiety associated with motor fluctuations is associated with perceived health status, impact of health on function

What do we mean by anxiety?

- Anxiety is a future oriented mood state that prepares us for negative outcomes
 - Life threatening situations or life-changing events
- Becomes a disorder when it is experienced **chronically and out of proportion** to the potential negative event or **interferes with meaningful participation in activities or relationships**

What is Anxiety?

- Physiological responses-racing heart, elevated blood pressure, sweating, gastrointestinal distress, urinary urgency, and shaking
- Behaviors-may use avoidance to stay away from situations perceived as threatening
- Cognitions-apprehensive thoughts, preoccupied with questions or details which do not decrease with reassurance

Symptoms in General

- Can range from mild nervousness to terror, irritability, increased startle, heightened emotional reactivity, somatic preoccupations, feelings of depersonalization or dissociation
- Fatigue, concentration problems, disturbed sleep, dyspnea, dizziness, muscle tension, restlessness, problems with higher order thinking
- Increased tremor, freezing of gait, worse motor functioning

Anxiety Disorder Subtypes

- Common anxiety disorders
 - Nervousness / Generalized Anxiety (10-15%)
 - Panic Attacks / Disorder (5-30%)
- Less common
 - Specific fears (social phobia in 7-13%)
 - Obsessive/Compulsiveness (part of dopamine dysregulation?)

Generalized Anxiety Disorder

- Chronic excessive worrying more days than not
- Can feel out of control
- Associated with at least three physical symptoms
 - muscle tension, restlessness, feeling keyed up or on edge, being easily fatigued, difficulty concentrating, sleep disturbance, and irritability
- Physical symptoms of PD often overlap

Panic Disorder

- Sudden unexpected anxiety attacks and worry about when another attack will occur
 - Includes emotional and physical distress
- Begin abruptly and peak within 10 minutes
- Can be specific to a situation or phobias
- Can be PD specific-off state related anxiety
- Associated with lower age of onset of PD symptoms, increased motor fluctuations, unpredictable off periods, and early-morning dystonia

Phobias

- Agoraphobia-avoidance of places or situations due to fear of an inability to escape or obtain help
- Social phobia-involve fear of embarrassment, humiliation, or scrutiny when in social or performance situations
 - May be related to PD symptoms such as tremor, trouble walking, speech difficulties, or awkward motor function when doing things like eating
 - Resolves when not in the social situation
 - More likely to have a younger age of PD symptom onset
- Can develop into phobic avoidance
- Can have a fear of falling

Obsessive-Compulsive Disorder

- Repetitive and intrusive thoughts and behaviors that are disturbing to the patient
- No increase in rate in persons with PD
- Certain PD medications, such as dopamine agonists can amplify impulse control disorders

Anxiety NOS

- Does not meet criteria for a specific subtype
- Anxiety associated with on/off motor fluctuations is most common
 - Greatest predictor of lower self-perceived health status
 - Unlikely to be diagnosed
- Also includes anticipatory anxiety, generalized worry, panic-like symptoms, and phobic-avoidant anxiety

Anxiety in off states

- Anxiety in PD is frequently associated with the “wearing off” phenomenon, and at least some evidence suggests that dopaminergic therapy can relieve this particular behavioral symptom
- Studies suggest that anxiety tends to occur during the “off” phase in those who experience on/off phenomena

Non Motor Fluctuations (NMFs)

- Non-motor fluctuations usually coincide with and may mask motor fluctuations
- NMFs are frequently more disabling and have a greater impact on a patient's quality of life
- "Wearing off" is the most common NMF
 - A predictable shortening in the duration of response to levodopa with gradual emergence of parkinsonian motor and non-motor symptoms
 - Nonmotor symptoms during the "wearing off" phase are different from the non-motor symptoms of PD because they tend to improve with the next dose of medication

NMF's continued

- NMF's can be categorized into three categories
 - Dysautonomic, Cognitive/psychiatric, and Sensory/pain
 - Autonomic complaints were the most common (44%)
 - Temperature regulation
 - Bowel and bladder dysfunction
 - Dysphagia and drooling of saliva or dry mouth
 - Orthostatic hypotension, tachycardia
 - Dyspnea (shortness of breath)
 - Peripheral edema

- Cognitive or psychiatric
 - Cognitive complaints occurred in (33%)
 - Mood symptoms
 - Anxiety, depression, irritability, panic attacks
 - Apathy
 - Fatigue
 - Psychotic symptoms
 - Euphoria, agitation, dopamine dysregulation syndrome
 - Visual hallucinations, delusions, paranoia
 - Cognitive functions
 - Difficulty with concentration, slowness of thinking, executive functioning
 - Sensory/pain
 - Sensory symptoms occurred in (24%)
 - Pain, numbness, or paresthesias

Most frequent NMF's

- In one study all PD patients reported at least one type of NMF, most of which were associated with "off" state
 - The most frequent were
 - Anxiety (66%)
 - Slowness of thinking (58%)
 - Fatigue (56%)
 - Akathisia (54%)
 - Irritability (52%)
 - Hallucinations (49%)

Assessment of Anxiety

- Anxiety can often be overlooked or undetected by patient's and/or their family members
- Distinguish from Primary Anxiety Disorder: Problem is Anxiety and PD symptoms can overlap
- Symptoms of anxiety can be very similar to PD symptoms or side effects of medication
 - Trembling/shaking-motor symptoms
 - Nausea
 - Avoidance due to embarrassment related to physical symptoms of PD

Assessment of Anxiety

- Assessment of Anxiety could be conducted by a psychologist, neuropsychologist, or psychiatrist
 - These individuals will usually conduct an interview asking patients about common symptoms related to anxiety and worrying
- Consider age at onset, pre-PD history, family history, motor fluctuations
- Anxiety can be depicted in many different ways

Questions related to anxiety

- Questions can include
 - Feelings of restlessness
 - Feelings of panic
 - Heart racing
 - Difficulty concentrating
 - Difficulty sleeping due to racing thoughts
 - General thoughts of worrying and being preoccupied more often than not

Neurobiological basis of anxiety in PD

- Still not fully known or understood
- Hypothesized that there is a reduction in the supply of norepinephrine and dopamine to the amygdala which may be associated with anxiety in PD
- Amygdala-an almond shaped set of neurons located deep in the brain's medial temporal lobe
- It has been shown to play a key role in the processing of emotions
- Conditions such as anxiety, depression, and phobias are some of the conditions that are suspected of being linked to abnormal functioning of the amygdala, owing to damage or neurotransmitter imbalance

Amygdala

- The amygdala is a region with severe Lewy body disease in patient's with PD
- Abnormalities in PD patients of certain brain chemicals involved in nerve transmission may also be responsible for anxiety
 - Norepinephrine
 - Serotonin
 - Dopamine

Treatment Options

- AAN Practice Parameter (Zesiewicz et al., 2010): insufficient evidence regarding treatment of anxiety in PD
- Determine if anxiety is related to off state or wearing off: if so, adjust antiparkinsonian medications (often undermedicated)
- If not related to motor off state, determine clinical severity of anxiety
 - If mild, consider psychological therapies
 - If severe, consider pharmacotherapy/medications

Medications

- Though there are few studies looking at the effectiveness of different drugs for anxiety in PD
- The use of antidepressants has been associated with improvements in anxiety severity
 - SSRIs favored, esp. with co-morbid depression
- What is known is that the use of anti-anxiety medications such as anxiolytics and benzodiazepines are not supported by studies conducted on individuals with PD
- Poor evidence regarding use of clomipramine (TCA)
 - These medications (anxiolytics, TCA, and benzodiazepines) can increase daytime fatigue, balance difficulties while walking, risk of falls, and cognitive side effects

SSRI Medications

- Potential Side Effects
 - Headaches, nausea
 - Insomnia, vivid dreams
 - Anxiety
 - Sedation
 - Weight gain
 - Sexual dysfunction

Psychotherapy Options

- Cognitive behavioral therapy for anxiety
 - Manualized treatment
 - Focuses on giving patient tools to address current symptoms
 - Teaches patients to confront their anxiety and take control of their worries
- Relaxation strategies-guided scripts
 - Imaginal Scripts
 - Non pharmacological pain management scripts
- Other talk therapies

Exercise

- Doing what you are capable of doing without injuring yourself and which is approved by your physician
- Research has shown that exercise can help alleviate mood symptoms, especially depression
- Exercise can assist with maintaining balance, mobility, and daily living activities in individuals with PD
- Can engage in exercises such as walking, biking, water aerobics, yoga, and tai chi
- No specific rule as to how much but most doctors will suggest an hour a day for three to four times a week

Exercise and Brain Effects

- One study found that individual's with PD who were within one year of diagnosis and not on any medications
- Who participated in intensive exercise (received treadmill training three times per week for 8 weeks)
- Demonstrated an increase in the number of D2 (dopamine receptors) allowing for more binding sites for dopamine and essentially the possibility of increase dopamine (Fisher et al., 2013).

Conclusions

- Anxiety is common in individuals with PD
- It is likely a consequence of neurochemical changes in the brain as a result of PD
- Treatment options include medications, specifically antidepressants, or psychotherapy
- Exercise has been shown to improve mood, certain physical symptoms in individuals with PD such as balance and mobility
- Exercise may have cognitive benefits

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