

A Comprehensive Review on Panic Disorders

P.N. Somthane^{1,*}, Kiran H. Makhija², Aarati Rajaram Sonawane³, Ashwini Gavit³,
N.S. Vyawahare⁴

Abstract

Panic disorder is a prevalent mental health condition characterized by sudden, recurring episodes of intense fear accompanied by physical symptoms. It is twice as likely to affect women and may have a genetic predisposition. This disorder stems from an exaggerated response of the body's survival mechanisms and hormones, impacting manifestations like agoraphobia. Additionally, it is associated with significant psychiatric comorbidity and impaired functioning in various roles. Recent research has delved into the neurobiology of common psychiatric disorders, particularly anxiety disorders, and their associated cognitive deficits. Studies have highlighted brain abnormalities in individuals experiencing fearful episodes, which can result in deficits in literacy and memory. The presence of anxiety and depression concurrently can further affect neuropsychological performance, although anxiety alone may not notably impact memory function. Understanding the interplay between anxiety, depression, and cognitive functioning is crucial for comprehensive treatment approaches in panic disorder and related conditions. This research sheds light on the complex mechanisms underlying these disorders and informs therapeutic interventions aimed at alleviating symptoms and improving overall quality of life.

Keywords: Antidepressants, anxiety disorders, neurophysiological, obsessive-compulsive disorder, panic attack

INTRODUCTION

Anxiety disorders like panic disorder are marked by sudden, recurrent bouts of extreme terror coupled with physical symptoms such as dizziness, shortness of breath, chest discomfort, and palpitations. or abdominal distress [1].

What causes fear complaints?

Fear complaint is a common internal health problem. Though it can occasionally start in nonage, it generally does so in nonage or early majority. It is doubly as common in women as in men. There may be an inheritable link. It tends to run in families. Fear complaint may be an overreaction of the body's normal survival instincts and behaviors. In people with fear complaint, the body may be more sensitive to hormones that spark agitated passions in the body [2].

*Author for Correspondence

P.N. Somthane

E-mail: pallavisomthane5@gmail.com

¹Assistant Professor, Department of Quality Assurance, Dr. D Y Patil College of Pharmacy, Akurdi, Maharashtra, India

²Assistant Professor, Department of Pharmacology, Dr. D Y Patil College of Pharmacy, Akurdi, Maharashtra, India

³Assistant Professor, Department of Pharmaceutical Chemistry, Dr. D Y Patil College of Pharmacy, Akurdi, Maharashtra, India

⁴Principal, Dr. D Y Patil College of Pharmacy, Akurdi, Maharashtra, India

Received Date: January 18, 2024

Accepted Date: February 16, 2024

Published Date: March 30, 2024

Citation: P.N. Somthane, Kiran H. Makhija, Aarati Rajaram Sonawane, Ashwini Gavit, N.S. Vyawahare. A Comprehensive Review on Panic Disorders. Research & Reviews: A Journal of Pharmaceutical Science. 2024; 15(1): 53–59p.

Panic disorder (PD) is a severe mental health condition characterized by frequent panic attacks, anxiety about the consequences, and behavioral changes. It can be accompanied by agoraphobia and is linked to high levels of psychiatric comorbidity and severe impairment. Recent studies have explored the neurobiology of common psychiatric disorders, including anxiety disorders, and the underlying cognitive impairments

associated with them [3]. Structural brain abnormalities have been identified in cases with anxiety diseases, including PD. Impaired administrative function has been reported in neuropsychological performance in OCD and Post-Traumatic Stress complaints. Imaging studies in PD have indicated abnormalities in specific brain regions, including metabolic exertion in the hippocampal and par hippocampal areas and temporal lobe structures. These abnormalities may lead to literacy and memory deficits in fear-disordered individuals. However, it remains unclear whether these abnormalities relate to structural differences or state or particularity anxiety [4].

The co-occurrence of anxiety and depression may influence neuropsychological performance. Although anxiety alone was not found to affect memory performance, when anxiety and depression were reported together by veteran participants, a significant negative effect on memory performance was seen. Overall, current exploration suggests that state or particularity anxiety alone in the absence of depression may not have a large impact on neuropsychological test performance in PD [5].

Panic episodes can also occur in various kinds of anxiety disorders. Panic disorder is often diagnosed if an individual has experienced four or more panic attacks and is always afraid of getting another one. A panic attack can manifest as various symptoms, such as (Figure 1) [6]:

- Sweating,
- Trembling or shaking,
- Shortness of breath,
- Sense of choking,
- Nausea or belly pain,
- Dizziness or light-headedness,
- Feeling unreal or disconnected from oneself,
- Fear of losing control,
- Fear of “going crazy” or dying,
- Numbness,
- Chills or hot flashes, and
- Chest pain and other symptoms that mimic a heart attack.

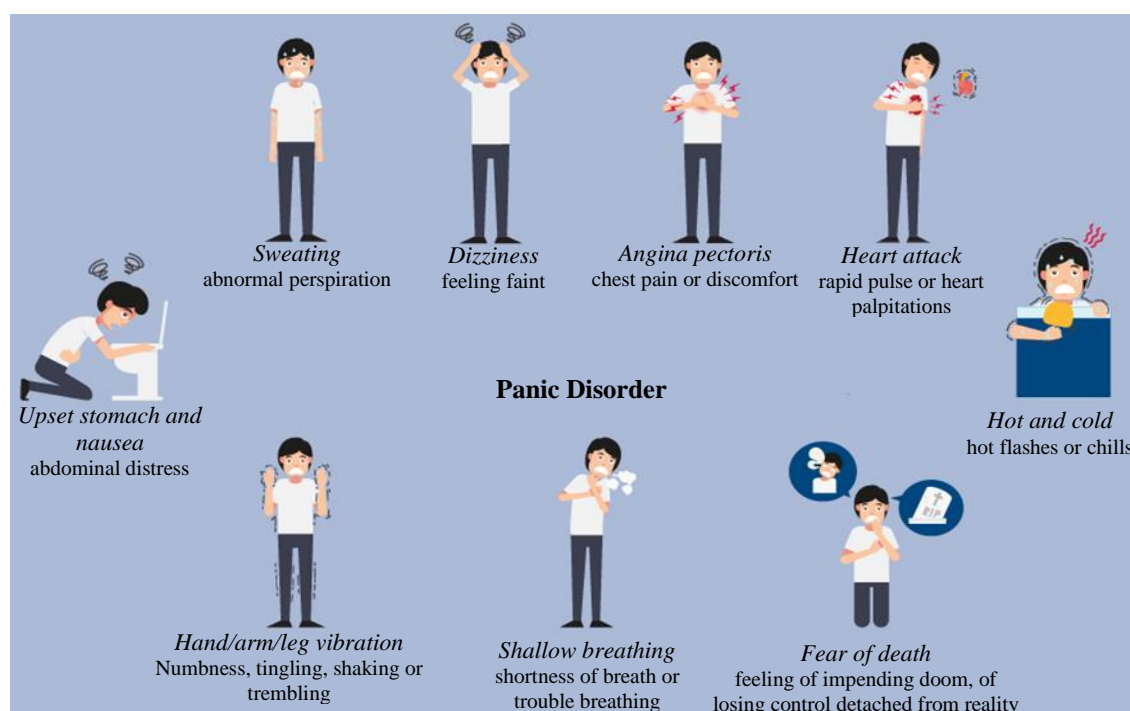


Figure 1. Symptoms of panic disorder.

https://www.google.com/search?sca_esv=591429559&rlz=1C1GCEB_

Fear complaint can be disturbing and disabling. An attack can last from many twinkles to an hour or occasionally longer. The symptoms of a fear attack may look like other internal health conditions. Always see your healthcare provider for an opinion. Individuals with fear complaints generally have a series of violent occurrences of extreme anxiety during fear attacks. These episodes usually last 10 min, though they might endure anywhere from 1 to 5 min, 20 min to over 1 h, or until someone steps in to assist. An hour is the maximum duration for panic attacks, although the severity and signs of panic can differ [7].

In certain instances, the assault might carry on unabatedly at a high intensity or appear to be getting worse. Although treating panic disorder can be difficult, there are a number of techniques that can assist people in both reducing their symptoms and enhancing their social interactions. Fast heartbeats, sweating, light-headedness, dyspnea, trembling, and uncontrollable dread, such as the fear of losing control and going insane, the fear of death, or hyperventilation, are typical signs of panic disorder attacks [7]. Symptoms of Parkinson's disease (PD) include choking, palsy, nausea, chills, hot flashes, vision problems, and a sense of altered reality. People often experience a strong desire to escape the situation that provoked the attack. Fear complaints are more severe and episodic than generalized anxiety complaints. They can be provoked by stimulants or settings and can occur nightly or unprovoked. Limited symptom attacks are similar but have smaller symptoms. Most people with PD experience both fear attacks and limited symptom attacks. These symptoms can be triggered by exposure to stimulants or settings [8].

Key Points About Panic Disorder

- An excessive reactivity to everyday pressures causing worry and anxiety is known as panic disorder [9, 10].
- The reaction sets off a hyperkinetic reaction, which is followed by a severe fear that there will be another assault shortly. This may interfere with one's capacity to operate normally.
- Panic disorders may be crippling because they cause you to become so terrified of when your next panic attack may occur that you are unable to function normally. It is a prevalent disorder that frequently results in depression.
- Treatment involves the use of anti-anxiety drugs and antidepressants along with cognitive behavioral remedies [11].

Fear complaint is a common anxiety disorder that affects about 2.5 million people at some point in their lives, often occurring in families. Factors such as smoking, cerebral stress, and a history of child abuse can contribute to anxiety. Other potential causes include internal diseases, medical conditions, and medication use. Treatment involves cognitive behavioral therapy (CBT), which is effective in over half of cases. Specific medications used include antidepressants, benzodiazepines, and beta blockers. Women are more likely to be affected than men and those with below-average intelligence. Treatment can be stopped after 30 days [12].

DIAGNOSING PANIC DISORDER

A panic disorder may be diagnosed by a mental health specialist or healthcare practitioner based on the symptoms you present. Panic disorder is generally indicated by four or more panic attacks and a persistent dread of experiencing another one [13–15].

According to the DSM-IV-TR diagnostic criteria, panic disorder is defined as unexpected, repeated panic attacks that, in at least one case, are followed by a major and associated behavior change that lasts at least a month, a persistent fear of further attacks, or worry about the effects of the attack. Agoraphobia is present in one of the two forms. Opinion is barred by attacks due to a medicine or medical condition, or by fear attacks that are better reckoned for by other internal diseases [9].

The ICD-10 Individual Criteria

The essential point is intermittent attacks of severe anxiety (fear), which are not confined to any particular situation or set of circumstances and are thus changeable. The dominant symptoms include:

- Onset of palpitations,
- Chest pain or tightness,
- Shortness of breath or hyperventilation,
- Choking sensations,
- Dizziness,
- Feelings of unreality (depersonalization or derealization), and
- Secondary dread of going insane, dying, or losing control.

Still, the fear complaint should not be the primary opinion; in these cases, the fear attacks are presumably secondary to depression, if a person has a depressive complaint at the time the occurrences begin. The Fear Complaint Inflexibility Scale (PDSS) is a questionnaire for measuring the inflexibility of fear complaint [10].

TREATMENT

Treatment may include:

- Anti-anxiety and antidepressant medications; and
- Counseling, such as cognitive behavioral therapy.

Treatment for fear diseases is generally effective, and the capability to face that symptoms are not life-changing improves with treatment. In order to lessen the severity and duration of the panic attack, you will also learn coping mechanisms and relaxation techniques.

Consequences of Panic Disorder

As the panic worsens and the episodes stay longer, you could find it extremely difficult to go about your daily business, hold down a job, or function in social settings. You might feel wedged or hysterical to enter situations from which you might not be suitable to get out. Some people are unfit to leave their homes out of concern that backing will not come or that they will be forced into situations that may provoke an attack. People with this condition may also abuse alcohol or medicines to relieve stress [16]. Fear complaint is a serious health problem that in numerous cases can be successfully treated, although there is no given cure. Identification of treatments that engender as full a response as possible, and can minimize relapse, is imperative. Cognitive behavioral remedies and positive tone-talk specific for fear are the treatments of choice for fear complaint. Several studies show that 85 to 90% of fear complaint cases treated with CBT recover fully from their fear attacks within 12 weeks. When cognitive behavioral remedy is not an option, pharmacotherapy can be used [17]. SSRIs are considered a first-line pharmacotherapeutic option [18].

MEDICATION

First-line therapies for depression include selective serotonin reuptake inhibitors instead of benzodiazepines because of concerns about tolerance, dependence, and abuse of the latter. Few research have been conducted, and treating panic with medicine makes treating phobias much simpler, even while there is no evidence that pharmacological therapies can directly affect phobias (one example in Europe where only 8% of patients receive appropriate treatment) [19].

Medications can Include

Antidepressants (SSRIs, MAOIs, tricyclic antidepressants and norepinephrine reuptake inhibitors): The most common SSRIs used while treating fear complaint include Prozac, Luvox, Zoloft, Paxil, Effexor, and Serzone with Prozac. These have been reported as the most effective in precluding fear attacks. The most developed and support tricyclic antidepressants are Tofranil and

Anafranil, Pamelor, Norpramin, and Elavil are many further tricyclic antidepressants that are specified for treatment. Compared to the two medicines preliminarily listed, there has not been as important conclusive exploration on these, despite their implicit utility in treating fear complaints. It is allowed that the stylish effective drug for precluding fear occurrences is an MAO asset. Phenelzine and Tofranil, two of the most generally used of anti-panic MAOI specifics, have been set up to be stylish with both being inversely effective in treatment [20].

The American Psychiatric Association suggests that benzodiazepines can be effective in treating fear complaint, but the World Federation of Societies of Biological Psychiatry advises against using them as a first-line treatment option. They believe that there is inadequate substantiation to recommend one treatment over another for fear complaint. The APA notes that benzodiazepines have a rapid-fire onset of action but also carry the threat of developing benzodiazepine dependence [21–24]. The National Institute of Clinical Excellence (NICE) disagrees, stating that benzodiazepines are not effective in the long-term for fear complaints and recommends indispensable pharmacotherapeutic or psychotherapeutic interventions. Despite benzodiazepines showing implicit superiority in the short term compared to placebos, the substantiation is low quality and has limited connection to clinical practice. Thus, the choice of antidepressants or psychotherapy should be grounded on the case's history and characteristics [25].

MECHANISM

Most anxiety disorders and panic disorders share a similar neuroanatomy. Neuropsychological, neurosurgical, and neuroimaging studies examine the connections between the insula, amygdala, hippocampus, anterior cingulate cortex, side prefrontal cortex, and periaqueductal slate. Most studies reveal increased blood flow or metabolism during acute panic attacks, when reading emotionally-laden phrases, and when at rest. The amygdala's hyperactivity is not always observed, though, particularly in research that chemically simulate panic attacks. Hippocampus hyperactivity has been observed during rest and viewing emotionally charged film land, potentially linked to memory reclamation bias towards anxious recollections. Abnormal interoceptive processes, the belief that one's own body sensations are real, are thought to be connected to insulin hyperactivity during the onset and duration of acute panic episodes. “Wrong” is a transdiagnostic finding (i.e. set up across multiple anxiety diseases), and may be related to insula dysfunction. Rodent and mortal studies heavily interlace the periaqueductal grey in generating fear responses, and abnormalities affiliated to the structure and metabolism in the PAG have been reported in fear complaint. The anterior cortex is intertwined in fear complaint by multiple lines of substantiation. Damage to the rearward ACC has been reported to lead to fear complaint. Elevated frontal ACC and dorsolateral prefrontal cortex during symptom provocation and viewing emotional stimulants have also been reported, although findings are not harmonious [13].

Researchers looking at a few people who suffer from panic disorder speculate that these people might have a chemical imbalance in the limbic system, specifically in the GABA-A neurotransmitter. The amygdala, which controls the body's “fight or flight” response medium, receives deceiving information from the dropped conflation of GABA-A, which results in the physiological symptoms that lead to the complaint. Clonazepam, an anticonvulsant benzodiazepine with a long half-life, has been successful in keeping the condition under control. Lately, experimenters have begun to identify intercessors and chairpersons of aspects of fear complaint. One similar middleman is the partial pressure of carbon dioxide, which mediates the relationship between fear complaint cases entering breathing training and anxiety perceptivity; therefore, breathing training affects the partial pressure of carbon dioxide in a case's arterial blood, which in turn lowers anxiety perceptivity. Another middleman is hypochondriacal enterprises, which intervene the relationship between anxiety perceptivity and fear symptomatology; therefore, anxiety perceptivity affects hypochondriacal enterprises which, in turn, affect fear symptomatology [14].

Perceived trouble control has been linked as a prolocutor within fear complaint, moderating the relationship between anxiety perceptivity and agoraphobia; therefore, the position of perceived trouble control dictates the degree. This agoraphobia is caused by perceptivity to anxiety. Genetic variants in the galanin gene are another lately discovered prolocutor of fear complaint; these inheritable variations modify the link between ladies with fear complaint and the position of inflexibility of fear complaint symptomatology [15].

CONCLUSION

Anxiety disorders such as panic disorder are marked by sudden and recurrent bouts of extreme terror coupled with physical symptoms such as dizziness, shortness of breath, chest pain, or stomach discomfort.

REFERENCES

1. NIH. (2016 Mar. Anxiety Disorder. Mental Health Information: Health Topics. National Institute of Mental Health. [Online]. Archived from the original on 29 September 2016. Retrieved 1 October 2016. NIMH » Anxiety Disorders (archive.org)
2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th Edn. Arlington: American Psychiatric Publishing; 2013; 208–217, 938. ISBN 978-0890425558
3. NIH. (2013). Panic Disorder: When Fear Overwhelms. National Institute of Mental Health. [Online]. Archived from the original on 4 October 2016. Retrieved 1 October 2016.
4. Craske MG, Stein MB. Anxiety. *Lancet*. 2016 Dec; 388(10063): 3048–3059. doi:10.1016/S0140-6736(16)30381-6. PMID 27349358. S2CID 208789585.
5. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines. Geneva: World Health Organization; 1992.
6. Herr NR, Williams JW, Benjamin S, McDuffie J. Does this patient have generalized anxiety or panic disorder?: The Rational Clinical Examination systematic review. *JAMA*. 2014 Jul; 312(1): 78–84. doi:10.1001/jama.2014.5950. PMID 25058220.
7. NHS Choices. (2023). Panic disorder. [online] Available from: <https://www.nhs.uk/mental-health/conditions/panic-disorder/>
8. Craske Michelle G, Kircanski Katharina, Epstein Alyssa, Wittchen Hans-Ulrich, Pine Danny S, Lewis-Fernández Roberto, Hinton Devon. Panic disorder: a review of DSM-IV panic disorder and proposals for DSM-V. *Depress Anxiety*. 2010 Feb; 27(2): 93–112. doi:10.1002/da.20654. PMID 20099270. S2CID 17789728.
9. Freire Rafael C, Perna Giampaolo, Nardi Antonio E. Panic Disorder Respiratory Subtype: Psychopathology, Laboratory Challenge Tests, and Response to Treatment. *Harv Rev Psychiatry*. 2010 Jul; 18(4): 220–229. doi:10.3109/10673229.2010.493744. PMID 20597592. S2CID 13567414.
10. Diler Rasim Somer, Birmaher Boris, Brent David A, Axelson David A, Firinciogullari Sekip, Chiapetta Laurel, Bridge Jeff. Phenomenology of panic disorder in youth. *Depress Anxiety*. 2004; 20(1): 39–43. doi:10.1002/da.20018. PMID 15368595. S2CID 23612310.
11. Frisch N, Frisch L. *Psychiatric Mental Health Nursing*. 3rd Edn. Canada: Thomson Delmar Learning; 2006. ISBN 9781401856441.[page needed]
12. *Psychiatric Drugs Explained 5th Edition*, David Healy MD FRCPsych, Churchill Livingstone; 5th edition (December 17, 2008)
13. O'Mahony JF, Ward BG. Differences between those who panic by day and those who also panic by night. *J Behav Ther Exp Psychiatry*. 2003; 34(3–4): 239–249. doi:10.1016/j.jbtep.2003.10.001.
14. Anxiety and PD. Parkinson's Foundation. Published 2022. Accessed April 15, 2024. <https://www.parkinson.org/library/fact-sheets/anxiety>.
15. Khalsa Sahib S, Lapidus Rachel C. Can Interoception Improve the Pragmatic Search for Biomarkers in Psychiatry? *Front Psychiatry*. 2016; 7: 121. doi:10.3389/fpsy.2016.00121.
16. Comer Ronald. *Fundamentals of Abnormal Psychology*. 7th Edn. New York: Worth Publishers; 2014; 122. ISBN 978-1-4292-9563-5.

17. Etkin A. Functional neuroanatomy of anxiety: a neural circuit perspective. In: Stein MB, Steckler T, editors. Behavioral Neurobiology of Anxiety and Its Treatment. Curr Top Behav Neurosci. 2010; 2: 251–77. doi:10.1007/7854_2009_5. ISBN 978-3-642-02911-0. PMID 21309113.
18. Clark DA, Beck AT. The Anxiety and Worry Workbook: The Cognitive Behavioral Solution. New York: Guilford Press; 2012.
19. Hawks E, Blumenthal H, Feldner MT, Leen-Feldner EW, Jones R. An examination of the relation between traumatic event exposure and panic-relevant biological challenge responding among adolescents. Behav Ther; Elsevier Ltd. 2011 Sep; 42(3): 427–38. doi:10.1016/j.beth.2010.11.002. PMID 21658525.
20. Panic Disorder and Pharmacological Treatment Options. Archived from the original on 15 April 2012. Retrieved 12 May 2012.
21. Flory JD, Yehuda R. Comorbidity between post-traumatic stress disorder and major depressive disorder: alternative explanations and treatment considerations. Dialogues Clin Neurosci. 2015; 17(2): 141–150. doi:10.31887/DCNS.2015.17.2/jflory. PMC 4518698. PMID 26246789.
22. Ludewig S, Geyer MA, Ramseier M, Vollenweider FX, Rechsteiner E, Cattapan-Ludewig K. Information-processing deficits and cognitive dysfunction in panic disorder. J Psychiatry Neurosci. 2005 Jan; 30(1): 37–43. PMC 543839. PMID 15644996.
23. Katerndahl DA, Realini JP. Relationship between substance abuse and panic attacks. Addict Behav. 1999; 24(5): 731–6. doi:10.1016/s0306-4603(98)00078-1. PMID 10574314.
24. Akindipe T, Wilson D, Stein DJ. Psychiatric disorders in individuals with methamphetamine dependence: prevalence and risk factors. Metab Brain Dis. 2014 Jun; 29(2): 351–7. doi:10.1007/s11011-014-9496-5. PMID 24532047. S2CID 14880172.
25. Panic Disorder. National Institute of Mental Health (NIMH). Published 2017. Accessed April 15, 2024. <https://www.nimh.nih.gov/health/statistics/panic-disorder#:~:text=Panic%20Disorder-,Definition,%2C%20dizziness%2C%20or%20abdominal%20distress>.