Diagnosis and Treatment of Panic Disorder

Case Study and Commentary, Stefan G. Hofmann, PhD, and Hyo-Jin Kim, MA

Abstract

- **Objective:** To review the diagnosis and treatment of panic disorder (PD).
- **Methods:** Qualitative assessment of the literature.
- **Results:** PD is a chronic and debilitating psychiatric condition characterized by recurrent unexpected panic attacks. As a consequence of the unexpected panic attacks, approximately one third to one half of individuals with PD develop agoraphobia. Although PD can be reliably diagnosed and effectively treated, it often remains undetected for many years, resulting in substantial personal and economic costs. Unexpected panic attacks are a hallmark of PD but are not specific for the disorder, and other anxiety disorders as well as general medical conditions must be ruled out before making a definitive diagnosis. Selective serotonin reuptake inhibitors are first-line pharmacologic treatment due to their low side-effect profile and broad spectrum of efficacy. Cognitive behavioral therapy (CBT) has been shown to be the most effective psychotherapy for treating PD. There is no clear evidence to suggest that either pharmacotherapy or CBT is superior for all patients or for particular subpopulations of patients.
- **Conclusion:** Primary care physicians must be aware of the clinical presentation and diagnostic criteria for PD and agoraphobia. Early detection and intervention at an early stage of the disease can alleviate patient suffering and substantially reduce economic costs associated with the disorder.

PD is underdiagnosed, with more than half of individuals who present with PD to primary care physicians going undetected [4–6]. PD patients are often not recognized because they present with somatic complaints, which are often incorrectly attributed to a general medical condition [3,5,7]. Even when the condition is properly diagnosed, patients may not receive adequate treatment [8,9]. Swinson, Cox, and Woszczyna [10] found that although 89% of patients with PD had received pharmacotherapy, only 28% had received efficacious pharmacologic treatment and only 11% had received evidence-based psychotherapy. Referrals to mental health professionals typically occur late in the course of the disorder [11].

This paper discusses important diagnostic issues and treatment aspects using a case vignette as an illustrative example. The article includes specific recommendations to detect the syndrome and a summary of the current intervention strategies, including pharmacotherapy and psychotherapy. In developing this article, we reviewed the literature...
Panic Disorder

CASE STUDY
Initial Presentation

A 40-year-old woman presents to her primary care physician with heart palpitations, dizziness, chest pain, and feelings of intense anxiety.

History

The patient is married with no children and works full-time as a human resources manager at a large insurance company. She reports that she experiences recurrent sudden attacks of heart palpitations, chest pain, smothering sensations, shortness of breath, dizziness, chills, and feelings of numbness in her extremities. During these episodes, she is concerned that she might die of a heart attack. These episodes are accompanied with intense anxiety and apparently come from out of the blue. In the past month, she has experienced 12 such episodes, which peaked within minutes. On a day-to-day basis, she experiences low levels of heart palpitations and occasional shortness of breath. She has gone to the emergency department (ED) 3 times over the past 6 months because of the intense physical symptoms, which she believed to be cardiac chest pain. However, testing has ruled out any cardiac abnormalities. After 1 ED visit, the patient was given a prescription for lorazepam (0.5 mg prn), but she discontinued it after a few days due to the unwanted side effects of drowsiness and slurred speech.

Although the patient has experienced some of the physical symptoms in circumscribed social situations (eg, public speaking) since college, they now also occur in a variety of other situations, including shopping malls, trains, and subways. The patient can only enter some of these situations when accompanied by her husband, who makes her “feel safe.” Her symptoms increased in frequency and intensity after the sudden death of her mother almost a year ago. At that time, she began avoiding a number of situations as a result of the distressing somatic symptoms. She frequently avoids using public transportation, crowded and enclosed places, long distance driving, and being at home alone. When she is accompanied by her husband, she is able to enter these situations but with great distress.

In an effort to better manage the physical symptoms, the patient has modified her lifestyle in subtle ways. She avoids hot and stuffy places or situations (eg, sauna, hot and humid weather), as these produce and aggravate smothering sensations. She has stopped exercising, avoids watching thrilling movies, and does not consume caffeinated beverages as these accelerate her heart rate and make her more aware of her physical symptoms. She reports that she takes her pulse frequently during the day to assure herself that it is within normal range. The patient also carries her cell phone and lorazepam with her at all times. Although she does not use the drug, she says that she feels safer carrying it with her “in case of emergency.” The patient does not report any other medical problems. Aside from infrequent use of propranolol (10 mg pm) for her public speaking fear, she reports not taking any other medications.

Physical Examination

The patient is 5’6” tall and weighs 160 lb. Her blood pressure is 125/80 mm Hg with a regular pulse of 64 bpm. The results of her physical examination are unremarkable. The patient has a mild case of asthma. Numerous tests, including a cardiac stress test, are within the normal range, and her electrocardiogram reveal no abnormalities.

How common is PD in the primary care setting?

An estimated 1.5% to 2.3% of the adult population will be afflicted with PD at some point during their lifetime [12]. Women are twice as likely to have PD [12–14]. The most common age of onset is between adolescence to early adulthood, with a median age of onset of 24 years [15]. In most cases, the disorder has a chronic course and tends to wax and wane in severity. More than half of individuals with PD suffer from comorbid psychiatric conditions [16,17] such as other anxiety disorders [18,19], mood disorders [20–22], and substance use disorders [23]. There is an increased risk for PD in a number of medical and psychiatric conditions, including irritable bowel syndrome, Parkinson’s disease, and schizophrenia.

Prevalence estimates of PD in the primary care setting range from 1.5% to 13% [24–26], while the prevalence rate among noncardiac chest pain patients presenting to cardiologists [4,27] and EDs [5,28] is 17% to 56%. Among mental disorders, PD is associated with the highest utilization of medical services [10,29,30]. Due to the similarity between the somatic symptoms of PD and those of cardiorespiratory, gastrointestinal, and otoneurologic illnesses, individuals suffering from PD are more likely to consult primary care physicians and medical specialists as opposed to mental health care professionals [31,32]. Individuals with PD have been shown to have 7 to 11 times more medical consultations than the general population [3,33]. Yingling and colleagues [28] found that 27% of patients with PD had visited the ED for chest pain at least 3 times in the past year.

How is the diagnosis of PD made?

Using bibliographic databases such as PSYCNINFO and MEDLINE using the terms panic disorder, panic attacks, primary care physician, interventions, CBT, and practice guidelines.
Diagnostic Criteria

PD is defined as the recurrence of unexpected panic attacks, which are discrete periods of intense fear or discomfort that are associated with 4 or more somatic and/or cognitive symptoms that develop abruptly and reach a peak within 10 minutes [34]. Symptoms may include but are not limited to palpitations, sweating, trembling, shortness of breath, chest pain, nausea, dizziness, feelings of derealization, fear of losing control, fear of dying, paresthesias, and chills. A complete list of symptoms is outlined in Table 1. Generally, the panic attack is also accompanied by a sense of imminent danger or impending doom.

The diagnosis of PD without agoraphobia is given if a person experiences at least 2 unexpected panic attacks. One of these panic attacks has to result in either persistent concern about having additional attacks, worry about the implications of the attack (eg, heart attack, “going crazy”) or a significant change in behavior that persists for at least 1 month. These symptoms cannot be due to the direct physiologic effects of a general medical condition or the effects of a substance (eg, medication, alcohol).

In assessing this diagnosis, information about (1) any history of unexpected panic attacks, (2) types of symptoms, and (3) frequency and course of symptoms needs to be ascertained. Routinely probing for these symptoms may increase the detection of potential cases of PD in primary care settings. Questions that can be used to elicit this information are:

- Have you ever experienced a sudden spell of intense fear or discomfort (eg, palpitations, dizziness) from out of the blue?
- How frequently have you experienced these unexpected spells in the past month (6 months)?
- What kind of symptoms do you typically experience (during this spell)?
- How quickly do these symptoms develop?

As a consequence of the unexpected panic attacks, approximately one third to one half of individuals with PD develop agoraphobia [35], which is the apprehension and avoidance of public places or situations in which escape might be difficult in the event of a panic attack. If a patient reports the avoidance of situations in addition to the recurrent unexpected panic attacks, the diagnosis of PD with agoraphobia (PDA) should be considered. Individuals with PDA typically avoid places or situations from which escape might be difficult or embarrassing, places in which help may not be available in the occurrence of a panic attack, or places in which they have experienced a previous panic attack. Examples of agoraphobic situations are crowded or enclosed places, air travel, long-distance driving, and being home alone. Table 2 lists typical agoraphobic situations.

The level of avoidance varies from person to person. Some people may avoid these situations completely, while others may be able to enter these situations with marked distress, either in the company of a safety person (eg, significant other, trusted friend) or with a safety object (eg, lucky charm, cellular phone). It is also common for patients with PDA to carry medication with them or to self-medicate with alcohol or benzodiazepines prior to entering a feared situation. Helpful probes to obtain information on agoraphobic avoidance are:

- Are there any places or situations (eg, crowded places) that you avoid or feel apprehensive about entering due to the fear of developing acute physical symptoms?

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Table 1. DSM-IV Criteria for Panic Attack

A discrete period of intense fear or discomfort, in which 4 (or more) of the following symptoms develop abruptly and reach a peak within 10 minutes:

1. Palpitations, pounding heart, or accelerated heart rate
2. Sweating
3. Trembling or shaking
4. Sensations of shortness of breath or smothering
5. Feeling of choking
6. Chest pain or discomfort
7. Nausea or abdominal distress
8. Feeling dizzy, unsteady, lightheaded, or faint
9. Derealization (feelings of unreality) or depersonalization (being detached from oneself)
10. Fear of losing control or going crazy
11. Fear of dying
12. Paresthesias (numbing or tingling sensations)
13. Chills or hot flushes


Table 2. Common Agoraphobic Situations

- Air travel
- Using public transportation (eg, train, bus)
- Enclosed spaces (eg, elevator)
- Crowded places (eg, shopping malls, sports events)
- Driving
- Going over bridges
- Going through tunnels
- Movie theaters
- Going for a walk
- Being at home alone
• Have you noticed any changes in your daily routine? Are you aware of any changes in your behavior as a result of the panic attacks? For instance, have you given up any activities due to the fear of inducing a panic attack (physical symptoms)?

• When experiencing a panic attack do you engage in any behaviors to reduce the intensity of the symptoms?

These questions can provide useful clues about the presence of PD. However, given the broad overlap between PD and other anxiety disorder symptoms, it is recommended that the treating physician confer with a mental health clinician who is trained in the delivery of specialized diagnostic instruments for anxiety disorders.

Differential Diagnosis

The context in which a panic attack occurs can provide useful information in determining a differential diagnosis. For the purpose of better distinguishing between the different anxiety disorders, panic attacks have been divided into 3 types based on the presence or absence of situational triggers: (1) situationally bound (or cued), (2) situationally predisposed, and (3) unexpected (or uncued). The first type occurs only in the presence of the fear-evoking stimulus; thus, the stimulus (eg, sight of blood) is a direct trigger of the panic attack. In a situationally predisposed panic attack, the presence of a situational trigger may increase the likelihood of the occurrence of an attack but does not always lead to one. Unexpected panic attacks, on the other hand, are not cued by situational triggers and occur out of the blue. The latter 2 types are more characteristic of PD, while the situationally bound panic attack is more common in specific phobia and social phobia. Cued panic attacks have also been reported in PD, but they tend to appear later in the course of the disorder.

Although unexpected panic attacks are a hallmark of PD, they are not specific for this disorder. Unexpected panic attacks can also occur in the context of other anxiety disorders (eg, social phobia, specific phobia, posttraumatic stress disorder), making it difficult for individuals not trained in diagnostic issues to clearly differentiate PD from other anxiety-related disorders. Rachman and Levitt [36] reported that among college students with claustrophobia, 25% of panic attacks were unexpected. Similarly, 53% of individuals fearful of driving have been reported to have had unexpected panic attacks [37].

The differentiation between PD and situation-specific phobia and social phobia can be particularly challenging, as the presentation of physical symptoms and the type of situation that is feared and/or avoided may be very similar. For example, a person with a dental phobia and a person with PD may both report the same panic-like symptoms (eg, heart racing, shortness of breath, dizziness, sweating) prior to or upon entering the dentist’s office. Although both may fear the same situation, further inquiry may eventually establish that the focus of their fear is dissimilar. The former may be afraid of the pain associated with the dental procedure, whereas a person with PD is afraid of being stuck and unable to leave the situation in the event of a panic attack. However, studies have shown that individuals with situational-specific phobia also have concerns about experiencing panic attacks, suggesting that the fear of a panic attack does not necessarily distinguish patients with PD from other anxiety disordered patients [37]. The distinguishing feature that diagnostically separates specific phobia from PD is the cue that triggers the anxiety. In specific phobia, external, situational cues seem to trigger the anxiety, whereas interoceptive cues such as bodily sensations (eg, heart racing) and cognitions (eg, about passing out, dying of a heart attack) seem salient in causing anxiety in PD [38].

Because of the overlap of symptoms and the subtle diagnostic differences between the disorders, it is useful to gather detailed information about the panic attacks using a systematic approach that assesses for the antecedents, behaviors, and consequences (ABCs). For instance, by examining external (eg, situation, time of day) and internal (eg, physical or cognitive) cues preceding a panic attack, behaviors prior to or during the panic attack, and the behavioral and cognitive consequences in response to the panic attack, one can obtain important information useful in better understanding the patterns of the panic attacks and the focus of the fear.

Medical Factors

Because anxiety attacks can be caused by general medical conditions and the physiologic effects of a substance, these conditions need to be ruled out before making a definite diagnosis of PD. DiBartolo and colleagues [35] recommend obtaining the patient’s history, medical test results, and current and past psychotropic substance use to aid in this assessment. The patient’s history about the nature and course of their panic attacks can provide helpful clues. For instance, onset of symptoms after age 45 may be indicative of a medical condition, as studies have found that the age of onset for PD is between late adolescence and adulthood, while onset after age 65 is very infrequent. Moreover, PD has a 4 to 7 times
greater occurrence among first-degree relatives. Thus, the absence of a family history of PD or anxiety disorders may suggest the possibility of a medical condition. The presence of atypical symptoms during a panic attack (eg, vertigo, amnesia, headaches, loss of consciousness) may also be a signal that the panic attacks have an organic basis that needs evaluating and attending [35]. Various medical conditions have been shown to cause panic attacks, including hyperthyroidism, hyperparathyroidism, pheochromocytoma, vestibular dysfunctions, seizure disorders, and cardiac conditions (eg, arrhythmias, supraventricular tachycardia).

Medical tests can be most valuable in ruling out the above mentioned medical conditions. Nevertheless, the existence of a medical illness does not preclude the diagnosis of an anxiety disorder. If the panic attacks are due to the direct effects of a medical condition, anxiety disorder due to a medical condition may be considered. Greater incidences of mitral valve prolapse (MVP) and cardiomyopathy have been found in individuals with PD [39]. Given the similarity in symptom profile and high comorbidity between PD and certain medical conditions, patients suffering from MVP, pacemaker syndrome, neutrally mediated syncope, and supraventricular tachycardia should be screened for PD [40].

Psychotropic substance use has been shown to induce panic attacks. Case studies [41] and clinical anecdotal evidence of patients assessed at our clinic suggest that stimulant use (eg, amphetamines, caffeine), intoxication with cannabis or hallucinogenic substances, and withdrawal from central nervous depressants (eg, alcohol, barbiturates) can precipitate a panic attack. A diagnosis of PD can be assigned if the panic attacks and apprehension continue long after the cessation of intoxication or withdrawal.

- What screening measures are available?

### Screening Tools

Several brief screening measures have been developed to aid primary care physicians in the early detection of PD and other forms of psychopathology. These measures have been shown to provide reliable and valid diagnostic information in a cost-effective manner.

The Autonomic Nervous System Questionnaire (ANS) [42] is a 2-item self-report measure screening for the presence of PD. It consists of 2 probes inquiring about the occurrence of a panic attack in the past 6 months. If one of the probes is answered positively, the patient is asked to complete 3 follow-up questions (Table 3). Stein et al [42] found that the ANS had high sensitivity for PD similar to other more comprehensive screening instruments [43] but had a relatively high rate of false positives.

<table>
<thead>
<tr>
<th>Table 3. Autonomic Nervous System Questionnaire</th>
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<tbody>
<tr>
<td>1. In the past 6 months, did you ever have a spell or an attack when all of a sudden you felt frightened, anxious, or very uneasy?</td>
</tr>
<tr>
<td>Yes___ No___</td>
</tr>
<tr>
<td>2. In the past 6 months, did you ever have a spell or attack when for no reason your heart suddenly began to race, you felt faint, or you couldn’t catch your breath?</td>
</tr>
<tr>
<td>Yes___ No___</td>
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<tr>
<td>IF YOU ANSWERED YES TO QUESTION #1 OR TO QUESTION #2, THEN CONTINUE WITH THE QUESTIONNAIRE, OTHERWISE, STOP.</td>
</tr>
<tr>
<td>3. Did any of these spells or attacks ever happen in a situation when you were not in danger or not the center of attention?</td>
</tr>
<tr>
<td>Yes___ No___</td>
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<tr>
<td>4. How many times have you had a spell or attacks in the past month? (check one)</td>
</tr>
<tr>
<td>Haasn’t happened at all in the past month___ Once___ 2 to 3 times___ 4 to 10 times___ More than 10 times___</td>
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<tr>
<td>5. In the past month, how worried have you been that spells or attacks might happen again? (check one)</td>
</tr>
<tr>
<td>Not at all worried___ Somewhat worried___ Very worried___</td>
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The Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD PHQ) [44] is a 41-item self-report measure that assesses psychiatric disorders (eg, somatoform disorders, depression, anxiety, alcohol, and eating disorders) and functional impairment. The time needed by the physician to review the PHQ is between 1 and 5 minutes. The measure has sensitivity (75%) and specificity (90%) comparable to that of the original clinician-administered instrument (PRIME-MD). The PRIME-MD PHQ Brief is a 28-item version that focuses mainly on depression and anxiety and does not assess for somatization and alcohol use. Both PRIME-MD PHQ versions also include optional items on recent psychosocial stressors and a section for women on problems with menstruation, pregnancy, and childbirth. Other more comprehensive instruments include the PRIME-MD [45], the Symptom-Driven Diagnostic System for Primary Care [46], and the Psychiatric Diagnostic Screening Questionnaire [47,48].

As an alternative to broad-based diagnostic screens, Lang and Stein [49] proposed the use of more general measures of negative affect. Given that negative affectivity is common to depression and anxiety, measures that are sensitive to this construct may be potentially useful as a preliminary screening tool. Examples of such tools are the 12-item General Health Questionnaire [50] or the 18-item Brief Symptom Inventory [51]. If a patient scores in the distressed range, this...
would necessitate a diagnostic workup using a more comprehensive psychiatric screening device. Early detection of PD may substantially reduce overall costs of care. Salvador-Carulla and colleagues [52] observed a 94% reduction in the use of nonpsychiatric health services over a 24-month period after the provision of an effective psychiatric intervention. Moreover, effective treatment was associated with increased quality of life and fewer panic attacks. Swinson et al [53] found that patients presenting to the ED assigned to a 1-session intervention consisting of exposure instructions over the phone reported less avoidance of feared situations and fewer panic attacks at 6-month follow-up compared with patients who received reassurance, suggesting that early identification of PD and minimal intervention may reduce the long-term consequences of PD.

**Diagnosis in This Patient**

The patient meets the diagnostic criteria for PD with agoraphobia as well as social phobia. A diagnosis of social phobia was given because of her longstanding concern of being negatively evaluated, which became interfering in college. She also received a diagnosis of PDA because the recurrent, unexpected panic attacks and her subsequent avoidance of activities and situations were not limited to social situations. Even though the current physical symptoms are very similar to those experienced in stressful social situations, the focus of her concern during a panic attack is primarily somatic in nature (eg, fear of developing strong physical symptoms, fear of having a heart attack) and uncharacteristic of social phobia. Furthermore, the discrete onset of her unexpected panic attacks relative to her social fears suggests that she suffers from 2 separate disorders.

**How is PD treated?**

Extensive research has been conducted on the efficacy of treatments for PD. In an effort to consolidate and disseminate this knowledge, the American Psychiatric Association developed evidence-based guidelines for the treatment of PD, which were based on a comprehensive literature review and published in 1998 [54]. The interventions recommended by the guidelines include pharmacotherapy and cognitive behavioral therapy (CBT).

**Pharmacotherapy**

According to the practice guidelines, PD may be treated with monoamine oxidase inhibitors, tricyclic antidepressants (TCAs), benzodiazepines, or selective serotonin reuptake inhibitors (SSRIs). Even though the efficacy of these drugs are deemed to be equal, SSRIs, such as citalopram, sertraline, paroxetine, and fluvoxamine, have been recommended as the first line of treatment for PD because of fewer side effects and broad spectrum of efficacy [55,56]. To date, the Food and Drug Administration has approved paroxetine, sertraline, and alprazolam for the treatment of PD with or without agoraphobia. Double-blind trials have established the effectiveness of paroxetine [57,58], fluvoxamine [59,60], and sertraline [61,62] for PD. For instance, a 10-week double-blind study (n = 176) comparing a flexible-dose treatment with either sertraline or placebo found that sertraline-treated patients had significantly greater improvements as measured by panic attack frequency and clinician and patient assessments than those treated with placebo [62]. Likewise, a randomized, double-blind, flexible-dose comparison of sertraline and placebo in outpatients with PD with or without agoraphobia (n = 168) showed that sertraline was associated with greater decreases in panic attacks (88%) than placebo (53%) after 10 weeks of treatment [61]. Patients who had received sertraline also had greater improvements on subjective measures of illness severity and quality of life.

As recommended by the American Psychiatric Association, the clinical recommendation is to first use an SSRI to treat PD. If a patient is intolerant to or does not respond to an SSRI, a second trial is initiated using a different SSRI. If 2 trials of SSRIs fail, a second line of treatment is initiated using TCAs (eg, nortriptyline, imipramine, amitriptyline, desipramine). Since TCAs are frequently not well tolerated because of anticholinergic side effects and potential weight gain with long-term usage [63], nortriptyline is preferentially used for panic patients because of fewer anticholinergic side effects [56]. For dosing, tapering, managing side effects, and other medication management issues, we recommend that the primary care physician either refer the patient to a psychiatrist or prescribe the medication in consultation with a psychiatrist.

Interestingly, the general assumption that SSRIs are superior to the older generation antidepressants due to greater tolerability was not supported by a recent study [64]. In the absence of treatment studies directly comparing the efficacy of SSRIs and TCAs, Otto and colleagues conducted an effect-size analysis comparing efficacy trials of SSRIs with a recent metaanalysis of non-SSRI treatments for PD. Findings revealed that SSRIs were not more effective or more easily tolerated than older antidepressants [64]. Unwanted side effects associated with SSRI use include sexual side effects, palpitations, nausea, and dizziness.

Benzodiazepines are frequently prescribed for PD because of the immediate anxiolytic effects relative to other drugs [65]. The use of benzodiazepines as a first line of treatment, however, is cautioned due to the common side effects associated with these medications (eg, sedation, fatigue, ataxia, or slurred speech, and amnesia), the potential for abuse and dependency, withdrawal liability, and greater rates of relapse following
discontinuation [66]. More than one third of patients (35%) who discontinued benzodiazepines experienced severe withdrawal symptoms including confusion, disorientation, heightened sensory perception, paresthesias, and decreased appetite [67]. Furthermore, between 63% and 84% of patients with PD (n = 50) who were treated for 8 months with alprazolam or diazepam experienced a relapse after a gradual dose reduction [68]. Individuals taking alprazolam reported more intense rebound anxiety and withdrawal symptoms compared with those on diazepam, suggesting that these adverse effects may be more common for shorter-acting drugs.

Despite the drawbacks of benzodiazepines, their use is indicated for the treatment of PD in select cases. These include (1) a history of nonresponse to antidepressants, (2) existence of a medical condition that prohibits the use of antidepressants, (3) debilitating symptoms that need to be rapidly controlled in the interim until the first line of treatment becomes effective, or (4) anxiety-provoking situations that are time-limited (eg, air travel). For more detailed information about the practical issues related to the pharmacologic management of PD, refer to Roy-Byrne et al [56] and Rollman and colleagues [55].

Patients who are still symptomatic but who take a high dose of benzodiazepines should be tapered off the drug.

**Cognitive Behavioral Therapy**

Among psychosocial treatments, CBT has been shown to be most effective psychotherapy for treating PD. The focus of CBT is to help the patient better understand and manage their anxiety using various coping strategies so that it no longer causes significant impairment [69,70]. A specific type of CBT for PD that has been widely studied is panic control treatment (PCT) [71]. PCT is a 12-session multicomponent treatment that includes (1) psychoeducation about the nature of anxiety and panic, (2) breathing retraining, (3) cognitive restructuring, and (4) systematic gradual exposures to feared situations and internal bodily sensations.

**Panic Control Treatment**

**Psychoeducation.** At the beginning of treatment, patients are provided information about the physiology of anxiety. The initial panic attack that started the cycle of anxiety is explained as a “false alarm” of the body’s fight-and-flight system occurring during a stressful time. Because of the absence of any clearly identifiable triggers to the attack, individuals with PD misinterpret their bodily sensations in a catastrophic manner (“I’m having a heart attack,” “I’m going crazy”) and consequently learn to fear the physical symptoms associated with a panic attack. The goal of psychoeducation is to help patients realize that although the somatic symptoms are extremely distressing, they are not life-threatening but are intended to have life-sustaining, adaptive functioning.

**Breathing retraining.** The focus of this treatment component is to help patients understand the link between hyperventilation and unwanted physical symptoms (eg, dizziness, feelings of derealization) and to learn to replace inefficient chest breathing with diaphragmatic breathing. Thus, patients are initially provided with an explanation of the origins and physiology of hyperventilation. Following a brief demonstration of the effects of hyperventilation, the patient is taught slowed diaphragmatic breathing at a rate of 8 to 10 breaths per minute. Since this can be a challenging task at first, patients are asked to practice slowed diaphragmatic breathing at home so that it eventually becomes natural.

**Cognitive restructuring.** The manifestation of anxiety and apprehension in PD is thought to stem partially from the catastrophic misinterpretations of the physical symptoms associated with a panic attack. Cognitive restructuring involves the systematic identification, challenging, and correction of faulty beliefs (eg, “I’m going crazy”), which are thought to contribute to the development and exacerbation of anxiety symptoms [72]. The modification of these incorrect assumptions and beliefs are therefore thought to attenuate the associated anxiety.

**Interoceptive exposure.** Since individuals with PD have learned to fear certain bodily sensations associated with a panic attack, the individual somatic symptoms eventually attain the ability to cause anxiety on their own. Henceforth, the focus of interoceptive exposure is to extinguish the anxiety that occurs upon experiencing the physical symptom by repeatedly and purposefully self-induced the feared physical symptoms through a standardized series of activities (eg, hyperventilation, breathing through a narrow straw, spinning in a chair, etc.) until these symptoms cease to cause anxiety [73]. Patients are encouraged to repeat these exercises at home. Furthermore, it is important that the patient reintroduce activities (eg, jogging, going to the sauna) and/or substances (eg, caffeine, sugar) into their daily lives that were previously avoided because of anxiety.

**Situational exposure.** For individuals who also have agoraphobic avoidance, it is necessary to include systematically planned in vivo exposures to feared situations. Situational exposures for PD are similar to those conducted for specific phobias. It involves the generation of a hierarchy of feared situations (eg, going to the mall, air travel) that are rated on a 0 to 100 scale based on the person level of fear and avoidance. These are gradually confronted from the least to the most anxiety-provoking situations. Repeated and prolonged exposures to the same situation will eventually lead to a rapid decline in anxiety.

After one situation has been mastered, the patient moves...
Efficacy of CBT

The efficacy of PCT has been empirically established in various double-blind clinical studies in which it was compared with alternative psychosocial treatments and/or medication treatments. One study compared PCT with progressive muscle relaxation (PMR), wait list (WL) control group, and a combination of PCT and PMR. Individuals in the combined treatment were 87% panic-free immediately after treatment relative to 85% of the PCT, 60% of the PMR, and 36% in the WL group [75]; however, at 2-year follow-up only 43% remained panic-free in the combined group in comparison to 81% of PCT patients and 36% of PMR patients [76]. Marked improvements in panic symptomatology have also been observed among individuals receiving a shortened version of PCT. Telch and colleagues [77] found that persons receiving 8 sessions of PCT in a group setting were 85% panic-free compared with 30% of WL controls. These gains were maintained at 6 months’ follow-up.

A recent multicenter randomized, double-blind study compared CBT only (n = 77) with imipramine only (n = 83), placebo (n = 24), CBT plus imipramine (n = 65), and CBT plus placebo (n = 63) [78]. Assessment at the conclusion of the 3-month treatment and after a 6-month maintenance phase showed that imipramine and CBT were superior to a placebo and approximately equally effective. At 6-month follow-up (after discontinuation of treatment), patients receiving CBT alone or CBT plus placebo maintained their treatment gains, whereas patients in the imipramine condition exhibited reductions in improvement. In sum, both imipramine and CBT were better than pill placebo and were effective immediately following treatment and during the maintenance phase, but only CBT seems to have long-lasting effects in follow-up. Furthermore, patients are more willing to receive CBT than imipramine as a treatment for their disorder [79]. This points to CBT as the first-line treatment for the disorder, and it emphasizes the need for ongoing treatment to prevent relapse when choosing pharmacotherapy as an intervention strategy.

Choosing Between Therapies

There is no clear evidence to suggest that either pharmacotherapy or psychotherapy is superior for all patients or for particular subpopulations of patients. The choice between psychotherapy and pharmacotherapy depends on an individualized assessment of the efficacy, benefits, and risks of each modality and the patient’s personal preferences (including costs). In every case, the patient should be fully informed about the availability and relative advantages and disadvantages of CBT, antipanic medications, and other forms of treatment [54]. Studies comparing the efficacy of combined antipanic medication and CBT with the efficacy of either modality alone have produced conflicting results.

Treatment

The patient received weekly CBT over a period of 3 months. As part of this treatment, the patient was instructed to repeatedly expose herself to various fear-provoking situations (eg, subway, malls, stuffy places) and to change her lifestyle by eliminating any subtle avoidance strategies (eg, not exercising, counting her pulse, carrying medication with her). Over the course of treatment, the patient experienced a significant decrease in her anxiety; her panic attacks decreased in frequency and intensity within the first few weeks. Although she still experienced occasional panic attacks (1 to 2 panic attacks in 2 months) at the conclusion of treatment, she no longer worried that they were signs of an impending heart attack. She was able to enter most of her feared situations (eg, subway, long distance driving, enclosed places) by herself with some residual discomfort. After treatment the patient continued to confront her anxiety through planned exposures on her own. One year after treatment, the patient reported being panic-free and able to enter all of the previously avoided situations without the use of avoidance strategies and with minimal discomfort. She was aware that the panic attacks may re-emerge during times of stress, but was confident that she could adequately cope with her anxiety using her cognitive-behavioral skills.

Summary

PD is a debilitating psychiatric disorder that is frequently encountered in primary care settings because of its acute somatic symptom profile. Although it is a diagnostically clearly defined and highly treatable condition, it is often misdiagnosed and untreated. The primary care physicians can alleviate the suffering of those patients and reduce the economic cost associated with the disorder by detecting and intervening at an early stage of the disease. Therefore, the physician must be aware of the clinical presentation and diagnostic criteria for PD and agoraphobia. Once the diagnosis is made, the physician should evaluate other psychiatric and medical factors that might contribute to the etiology and treatment of the disorder. Due to the disorder’s chronic and unremitting nature, early intervention is important.
References


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EVALUATION FORM: Diagnosis and Treatment of Panic Disorder

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Part 1. Please respond to each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I was provided with new information pertinent to my practice.</td>
<td></td>
<td></td>
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<tr>
<td>I reaffirmed a specific skill or knowledge.</td>
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<td>This article will help with clinical decision making.</td>
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<tr>
<td>Relevant clinical outcomes are addressed.</td>
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<tr>
<td>The case is communicated in a manner that kept my interest.</td>
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<td>The case presentation is realistic and effective.</td>
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<td>I could easily interpret the tables and figures.</td>
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<td>My attitude about this topic changed in some way.</td>
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<td>Additional comments:</td>
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</tbody>
</table>

Part 2. Please complete the following sentence.

As a result of reading this case study, I . . .

- see no need to change my practice.
- will seek more information before modifying my practice.
- intend to change the following aspect(s) of my practice: (Briefly describe)


Signature: ____________________________  Date: ____________________________

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