JAMA | Review

Borderline Personality Disorder
A Review

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IMPORTANCE Borderline personality disorder (BPD) affects approximately 0.7% to 2.7% of adults in the US. The disorder is associated with considerable social and vocational impairments and greater use of medical services.

OBSERVATIONS Borderline personality disorder is characterized by sudden shifts in identity, interpersonal relationships, and affect, as well as by impulsive behavior, periodic intense anger, feelings of emptiness, suicidal behavior, self-mutilation, transient, stress-related paranoid ideation, and severe dissociative symptoms (eg, experience of unreality of one's self or surroundings). Borderline personality disorder is typically diagnosed by a mental health specialist using semistructured interviews. Most people with BPD have coexisting mental disorders such as mood disorders (ie, major depression or bipolar disorder) (83%), anxiety disorders (85%), or substance use disorders (78%). The etiology of BPD is related to both genetic factors and adverse childhood experiences, such as sexual and physical abuse. Psychotherapy is the treatment of choice for BPD. Psychotherapy such as dialectical behavior therapy and psychodynamic therapy reduce symptom severity more than usual care, with medium effect sizes (standardized mean difference) between −0.60 and −0.65. There is no evidence that any psychoactive medication consistently improves core symptoms of BPD. For discrete and severe comorbid mental disorders, eg, major depression, pharmacotherapy such as the selective serotonin reuptake inhibitors escitalopram, sertraline, or fluoxetine may be prescribed. For short-term treatment of acute crisis in BPD, consisting of suicidal behavior or ideation, extreme anxiety, psychotic episodes, or other extreme behavior likely to endanger a patient or others, crisis management is required, which may include prescription of low-potency antipsychotics (eg, quetiapine) or off-label use of sedative antihistamines (eg, promethazine). These drugs are preferred over benzodiazepines such as diazepam or lorazepam.

CONCLUSIONS AND RELEVANCE Borderline personality disorder affects approximately 0.7% to 2.7% of adults and is associated with functional impairment and greater use of medical services. Psychotherapy with dialectical behavior therapy and psychodynamic therapy are first-line therapies for BPD, while psychoactive medications do not improve the primary symptoms of BPD.

JAMA. 2023;329(8):670-679. doi:10.1001/jama.2023.0589

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Supplemental content

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Section Editor: Mary McGrae McDermott, MD, Deputy Editor.

Borderline personality disorder (BPD) is characterized by alterations in self-image and interpersonal relationships marked by sudden shifts between extremes of idealization (extremely positive views about the self or others) and devaluation (extremely negative views about the self or others).[1,2] People with BPD typically experience intense anxiety, irritability, or dysphoria as well as impulsive behavior with regard to spending, sexual activity, substance misuse, or binge eating.[1] Borderline personality disorder affects approximately 0.7% to 2.7% of adults.[3,4]

This Review summarizes current evidence regarding the epidemiology, pathophysiology, diagnosis, and treatment of BPD in adults. Questions about BPD typically asked by a generalist and their answers are listed in **Box 1**.

Methods

PubMed and PsycINFO were searched for English- and German-language articles on epidemiology, pathophysiology, diagnosis, and treatment of adult patients with BPD published between January 1, 2010, and November 10, 2022. Reference lists of included studies were searched manually for relevant studies. For electronic searches, the title key word (*borderline personality disorder* [ti]) was combined with several search terms, ie, *epidemiology*, *prevalence*, *diagnosis*, *treatment*, *therapy*, *psychotherapy*, *pharmacotherapy*, *neuroimaging*, and *neurobiology*. The most recent studies and clinical trials as well as meta-analyses, systematic reviews, and clinical practice guidelines were prioritized for inclusion. The Cochrane

database was also searched between January 1, 2018, and November 10, 2022, for meta-analyses of treatments for BPD. Four authors (F. Leichsenring, N. Heim, F. Leweke, C. Steinert) independently selected the most recent studies that were relevant to clinical practice. Of 2605 articles identified, 83 were included, consisting of 11 systematic reviews, 22 narrative reviews, 9 meta-analyses, 5 clinical practice guidelines, 7 articles on diagnostic assessment, 24 articles on epidemiology, 4 articles on neurobiology, and 1 article on family treatment.

Box 1. Common Questions About BPD Typically Asked by Generalist Clinicians

How Should BPD Be Treated?
Psychotherapy is an effective treatment for BPD. Dialectical behavior therapy and psychodynamic therapy are the types of psychotherapy that are most effective.

Can BPD Be Effectively Treated With Pharmacotherapy?
There is no evidence that pharmacotherapy improves core symptoms of BPD. The first-line treatment is psychotherapy. Pharmacotherapy should be prescribed for discrete comorbid disorders only (eg, depressive or anxiety disorders) or in times of crisis.

Is There Any Indication for Prescribing Medications for BPD?
Patients with BPD who have suicidal behavior, psychotic symptoms, severe depression, or extreme anxiety may be treated with medications. For the short-term treatment of crises, antipsychotic medications may be used, but should not be used for longer than 1 week.

Abbreviation: BPD, borderline personality disorder.

Epidemiology

Although BPD affects approximately 0.7% to 2.7% of adults in the general population,[3,4] higher prevalence rates were reported in primary care (6%), patients using outpatient psychiatric services (11%-12%), and patients treated in psychiatric hospitals (22%).[4,5] In a US community sample of 34 481 adults, 2.7% had been diagnosed with BPD in their lifetime. In this study, only slightly higher rates were observed in women compared with men (3% vs 2.4%),[6] while among 3800 patients treated in a psychiatric outpatient setting, considerably higher rates of BPD were found in women compared with men (72% vs 28%).[5] The age of onset varies, but symptoms are usually manifest in early adulthood.[1] Borderline personality disorder is associated with severe social and vocational impairments, such as inability to hold a job, high rates of comorbid mental disorders and somatic diseases, more frequent use of outpatient and inpatient medical services, high rates of suicide, and high direct medical and indirect costs (eg, sick-leave days). These factors are more common in patients with BPD compared with patients with anxiety and depressive disorders, diabetes, epilepsy, or Parkinson disease.[7-12] Only approximately 16% of people with BPD were reported to be married or living with a partner and only about 35% had good work or school performance.[13] People with BPD had worse global social functioning than people with other personality disorders (avoidant and obsessive-compulsive personality disorders) and higher rates of comorbid major depressive disorder.[14]

More patients with BPD than patients with other personality disorders die by suicide. A 24-year prospective follow-up study including 290 patients with BPD and 72 patients with other personality disorders reported that 5.9% of patients with BPD died by suicide compared with 1.4% of patients with other personality disorders.[12] While the sample size of the comparison group was relatively small, the results reported by this study were consistent with those of a recent meta-analysis that reported suicide rates of 2% to 5% (mean rate of 4%) over follow-up periods of 5 years to 14 years among people with BPD.[11] Suicide attempts occurred in more than 75% of individuals with BPD.[15] Patients with BPD have a higher prevalence of comorbidities such as endocrine, metabolic, respiratory, cardiovascular, and infectious (eg, HIV, hepatitis) diseases than persons without BPD.[9,16] Mortality due to causes other than suicide is also higher. For example, in the 24-year longitudinal study by Temes et al,[12] 14% of patients with BPD and 5.5% of patients with personality disorders other than BPD died of non–suicide-related causes. Borderline personality disorder was associated with a 2.3-fold increase in mortality rate during 2-year follow-up compared with patients without BPD who had other mental disorders or medical conditions (absolute rates were not provided).[9] Similar to people with other serious mental disorders, patients with BPD died approximately 14 to 32 years earlier than individuals in the general population,[12] with some studies reporting loss of life expectancy of approximately 6 to 7 years.[9] Discrepancies in results may be due to methodological differences between the study by Temes et al[12] and the study by Schneider et al.[9] While the study by Temes et al[12] followed up 290 patients with BPD in the US for 24 years whose diagnoses were made using the Revised Diagnostic Interview for Borderlines,[17] the study by Schneider et al[9] was carried out in Germany and examined 2-year mortality in a randomly selected sample of 203 378 patients followed up for 2 years who were diagnosed with BPD via public health insurance data using the *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* (*ICD-10*)[18] by medical service providers for whom reliability of assessment was unclear. Compared with individuals without BPD, men with BPD had a poorer life expectancy than women (odds ratio, 2.40 [95% CI, 1.93-2.54] vs 2.21 [95% CI, 2.08-2.77]).[9]

Borderline personality disorder is associated with significantly higher prevalences of other mental disorders.[16] In the US study of 34 481 community-dwelling adults, people with BPD had higher rates of the following mental disorders in their lifetime: mood disorders such as major depression or bipolar disorder (83%), anxiety disorders (85%), substance use disorders (78%), posttraumatic stress disorder (PTSD) (30%), and other personality disorders (53%).[6] In the general population, including approximately 12% of individuals with personality disorders including BPD,[19] lifetime prevalence rates of mood disorders, anxiety disorders, PTSD, substance use disorders, and personality disorders were 21%, 34%, 8%, 3%, and 12%, respectively.[19-21] Of patients with BPD, approximately 10% had bipolar I disorder (depressive and manic episodes) and an additional 10% had bipolar II disorder (depressive and hypomanic episodes).[22,23] Among people with attention-deficit/hyperactivity disorder, the lifetime rate of BPD was 37.7%.[24]

Box 2. *DSM-5* and *ICD-11* Criteria for BPD

***DSM-5* Criteria**

According to the categorical model of personality disorders, the *DSM-5* characterizes BPD by a pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity, beginning in early adulthood and present in a variety of contexts, as indicated by 5 or more of the following criteria[1]:

- Frantic efforts to avoid real or imagined abandonment
- A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation
- Identity disturbance: markedly and persistently unstable self-image and sense of self
- Impulsivity in at least 2 areas that are potentially self-damaging, eg, spending, sex, substance abuse, reckless driving, binge eating
- Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior
- Affective instability due to a marked reactivity of mood, eg, intense episodic dysphoria, irritability, or anxiety, usually lasting a few hours and rarely more than a few days
- Chronic feelings of emptiness
- Inappropriate intense anger or difficulty controlling anger, eg, frequent displays of temper, constant anger, recurrent physical fights
- Transient, stress-related paranoid ideation or severe dissociative symptoms

***DSM-5* Proposed Alternative Dimensional Model of Personality Disorders**

The proposed alternative dimensional model of personality disorders (AMPD) included in the *DSM-5* assesses (1) the level of personality functioning and (2) pathological personality traits.[1]

Criterion A

For BPD, criterion A requires moderate or severe impairments in at least 2 of the following areas: (1) unstable self-image (identity); (2) unstable goals and values (self-direction); (3) compromised ability to recognize the feelings and needs of others (empathy); and (4) intense, unstable, and conflicted relationships (intimacy).

With regard to personality functioning, the AMPD draws on psychodynamic concepts such as personality organization and mentalization.[2,29]

Criterion B

Criterion B requires 4 or more of the following 7 personality traits for a diagnosis of BPD: emotional lability, anxiousness, separation insecurity (eg, fear of rejection or separation or fear of dependency and loss of autonomy), depressivity, impulsivity, risk taking, or hostility.[1]

Criteria C and D

Impairments in personality functioning and pathological personality traits are required to be relatively pervasive and stable.

***ICD-11* Criteria**

In the dimensional *ICD-11* model of personality disorders, the diagnostician rates the severity of personality (dys)function on 3 levels: mild, moderate, or severe.[30] While in the clinical setting most patients with BPD can be expected to be classified as having a severe personality disorder, the *ICD-11* allows the rating of patients with BPD in whom some areas of personality functioning are relatively less affected, as with a moderate personality disorder.[31] Of the former 10 discrete personality disorders, only BPD will remain a distinct diagnosis by use of a "borderline pattern qualifier," that is, the additional diagnosis of BPD according to the categorical model of the *DSM-5*.[30]

Abbreviations: BPD, borderline personality disorder; *DSM-5*, *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition); *ICD-11*, *International Classification of Diseases, 11th Revision*.

In older compared with younger patients with BPD, a shift in symptoms toward more depression, feelings of emptiness, and somatic problems has been described.[25-27] As people with BPD become older, emotional dysregulation, unstable interpersonal relationships, anger, and attachment insecurity typically persist, whereas impulsivity and identity disturbances tend to decrease.[25,26] In older people with BPD, self-harm may manifest as nonadherence to medications or misuse of medication.[26]

Clinical Presentation of BPD

In general, personality disorders are characterized by symptoms in 2 or more of the following domains: cognition (eg, perceiving and interpreting self, other people, and events), affectivity (eg, intensity, lability, and appropriateness of emotional responses), interpersonal functioning (ways of responding to interpersonal situations), and impulse control. The symptom patterns are enduring and inflexible, that is, these symptoms are not adaptable to specific situations.[1] This pattern of behavior differs from the expectations of an individual's culture and leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning, such as recreation or global adjustment.[1] The pattern is not typically explained by another mental disorder or by the physiological effects of a substance (eg, a drug or medication) or another medical condition (eg, head trauma).[1] Borderline personality disorder as a specific personality disorder is characterized by a pervasive pattern of abrupt changes in self-image, interpersonal relationships, and affects, including sudden shifts between all-good or all-bad images of the self and others.[1] For example, a patient may describe a parent as abusive, then several minutes later describe them as their best friend. Individuals with BPD experience such extreme views of the self and of others as unrelated to each other.[2,28] Borderline personality disorder is also characterized by marked impulsivity and by moods shifting between intense anxiety, irritability, and dysphoria, each lasting a few hours to a few days (**Box 2**).[1] In contrast to dissociative identity disorder, which is characterized by a longitudinal variability in personality style (due to inconsistency among identities), BPD is characterized by a persistent and pervasive dysfunction in affect and interpersonal regulation.[1] Because of this persistent and pervasive dysfunction, individuals with BPD can be distinguished from individuals with mood disorders, anxiety disorders, PTSD, substance-related disorders, or bipolar I and II disorders. In bipolar I and II disorders, for example, symptoms are restricted to a distinct episode and are separated by periods when the individual does not display signs of the mood disorder.[1] Additional symptoms of BPD include intense anger, chronic feelings of emptiness, recurrent suicidal behavior or

self-mutilation, extreme efforts to avoid abandonment, and transient stress-related paranoid ideation or severe dissociative symptoms (ie, disintegration of usually integrated mental functions such as consciousness, perception, memory, or identity leading to amnesia or experiencing self or surroundings as unreal).[1] Although the symptoms are not listed in the *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) (*DSM-5*), BPD is characterized by non–age-appropriate emotions or behaviors in unstructured situations, which can complicate treatment of BPD.[32] Susceptibility to behaving in a manner that is not age-appropriate in unstructured settings has been empirically demonstrated with unstructured psychological tests such as the Rorschach test or the Thematic Apperception Test.[33-36] In these unstructured conditions, people with BPD show bizarre-idiosyncratic thinking (eg, "This is a man with the face of a snake and the paws of a tiger").[33-36]

Adverse Childhood Experiences and Development of BPD

Genetic factors and adverse childhood experiences may interact to influence brain development through altered hormones and neuropeptides, increasing the risk of BPD.[7,37-40] Adverse childhood experiences may modulate gene expression and lead to stable personality traits.[7,38,41] Borderline personality disorder is more common in people with a family history of BPD.[7,42] For example, a population-based Swedish study including 1 851 755 participants, of whom 11 665 (0.6%) had a diagnosis of BPD according to the *ICD-10*, estimated heritability of BPD at 46%; the remaining 54% of variance was explained by nonshared environmental factors.[43] The hazard ratio was highest in identical twins (11.5; 95% CI, 1.6-83.3). The risk of receiving a BPD diagnosis was increased 4.7-fold for full siblings.[43] However, no single-nucleotide variants have been identified for BPD.[44] Adverse childhood experiences including physical, sexual, or emotional abuse and neglect are more common in people with BPD.[16,45,46] However, not all people diagnosed with BPD have a history of adverse childhood experiences.[45] An empirically supported model of the neurobiology of BPD does not exist, as meta-analyses on neuroendocrinological processes[47-49] and brain functioning[50,51] found only a few differences in these variables among people with BPD compared with healthy controls. The most consistent finding was hyperactivity of the amygdala,[50,51] but its role remains unclear.[52]

Assessment and Diagnosis

In the categorical model of personality disorders, which uses absolute (yes/no) categories of diagnostic criteria, 5 or more of 9 criteria listed in Box 2 are required for a diagnosis of BPD.[1] The proposed alternative dimensional model of personality disorders of the *DSM-5* defines personality disorders by the level of personality functioning (criterion A),[1] which is rated on a continuum ranging from 0 (little or no impairment) to 4 (extreme impairment).[1] For the diagnosis of BPD, a moderate (score of 2) or greater (score of ≥3) impairment is required.[1] Additionally required criteria are listed in Box 2. In the World Health Organization's upcoming 11th revision of the *ICD*, the categorical system of personality disorders will be almost entirely replaced by a dimensional system similar to the proposed alternative *DSM-5* model previously described (Box 2).[53]

In the initial assessment, primary care clinicians may use the screening questions shown in **Table 1**.

To identify patients with BPD, primary care clinicians should evaluate patients for recurrent suicidal behavior, gestures, or threats; self-mutilating behavior; and impulsive potentially self-damaging behavior (eg, massive spending, unprotected sex, substance abuse, reckless driving, binge eating), as well as for inappropriate anger (frequent displays of temper, constant anger, recurrent physical fights). In addition, clinicians should look for marked reactivity of mood (eg, short-lived intense episodic dysphoria, irritability, or anxiety) or chronic feelings of emptiness and fear of being abandoned. Inquiring about interpersonal relationships is helpful because these relationships are typically unstable and intense and characterized by alternating between extremes of idealization and devaluation.[1]

Borderline personality disorder can be reliably diagnosed by trained interviewers/clinicians using semistructured interviews. Several reliable and validated interview methods exist.[7,65] In addition, self-report questionnaires are helpful in diagnosis, as well as unstructured tests such as the Rorschach test or the Thematic Apperception Test, which facilitate assessment of personality functioning.[7,32,33,35,36] Sensitivity of these different diagnostic instruments ranges between 83% and 89% and specificity between 78% and 93%.[17,59,66]

Treatment

Clinical Management

Patients with BPD should be informed of their diagnosis, the expected course of the disorder, etiology, and treatment options.[54] Clinicians should set clear boundaries, avoid responding to provocative behavior, avoid polypharmacotherapy, and facilitate open communication and agreement on a consistent approach with all treating clinicians to prevent a situation in which some clinicians are regarded as "good" and others as "bad" (Table 1).[54,55,67] The patient should be informed that effective methods of psychotherapy exist and that medications are appropriate only for treating discrete comorbid mental disorders or in situations of crisis, such as suicidal behavior, extreme anxiety, or psychotic episodes. This education of patients facilitates an alliance between patients and clinicians and may encourage patients to take part in psychotherapy.[7] Typical crises in BPD consist of suicidal behavior or ideation, extreme anxiety, psychotic episodes, or other extreme behavior likely to endanger the patient or others, usually caused by interpersonal problems such as real or imagined abandonment or by shifts from idealization to devaluation. Life-threatening behaviors (eg, suicidal, self-mutilating, or high-risk behaviors, as well as attacks against others) should be identified and promptly treated (see Pharmacotherapy section and Table 1). With regard to comorbid mental disorders, experts suggest that comorbid bipolar I disorder, early-onset complex PTSD, severe substance misuse, and anorexia should be treated before BPD, since these disorders need to be well controlled before BPD can be treated successfully.[7] In contrast, for patients who have comorbid depressive disorder, panic disorder, adult-onset PTSD, intermittent substance use disorder, or bulimia, treating BPD should

Table 1. Recommended Approaches for Treating Patients With BPD in Primary Care Settings

	Approach
Patient-clinician relationship	
General clinical approach	Set clear boundaries while maintaining empathy (eg, in case of excessive wishes for contact or treatment), avoid response to provocative behavior, and avoid polypharmacotherapy.[54,55]
Establishing a productive patient-clinician relationship	Establish a helpful alliance by an attitude of understanding, acceptance, and empathy and by setting goals, communicating realistic hope, and explaining the disorder and possible treatments.[56,57]
Avoiding stigmatization	Avoid preconceptions such as viewing patients with BPD as intentionally difficult or untreatable.[58]
Collaboration among all treating clinicians	Open communication and agreement on a consistent approach with all clinicians to avoid splitting (eg, one clinician is "all good," another "all bad").[54,55]
Recognizing, managing, and using one's own feelings to understand the patient	Patients with BPD typically have difficulty regulating interpersonal relationships and emotions, which may lead to behaviors that provoke strong and unusual reactions from clinicians (a phenomenon called countertransference), eg, feelings of being powerless or hopeless or of extreme anger or commitment.[55] These feelings may inform clinicians of patients' own feelings.[55]
Using biographical information such as sexual or physical maltreatment	Understanding patients' biographical experiences may help clinicians to understand patients' strong reactions, eg, of (inappropriate) anger, and prevent clinicians from taking them personally, as they may be a projection of other experiences.
Diagnostic assessment	
Preliminary assessment of BPD	In primary care, BPD can be identified based on unstable identity, interpersonal relationships, and affect.[7] Helpful questions may include, for example[59]: • Do you often wonder who you really are? • Do you sometimes feel that another person appears in you that does not fit you? • Do your feelings toward other people quickly change into opposite extremes (eg, from love and admiration to hate and disappointment)? • Do you often feel angry? • Do you often feel empty? • Have you been extremely moody? • Have you ever deliberately hurt yourself (eg, cut or burned yourself)?
Conveying the presumptive diagnosis of BPD	Summarizing *DSM-5* or screening criteria that seem to be present in a patient, a primary care clinician may say to the patient that these symptoms suggest BPD and that referral to a psychotherapist is recommended, since psychotherapy is first-line treatment for BPD. A primary care clinician may also ask a patient whether they have already been given the diagnosis of a (borderline) personality disorder.
Management in general practice and recommended treatment options	
Long-term management	Refer to a mental health expert.
Psychotherapy treatment recommendations	Psychotherapy is first-line treatment. No differences in efficacy were found between empirically supported psychotherapies such as dialectical behavior therapy, cognitive behavior therapy, or psychodynamic therapy.[60]
Pharmacotherapy treatment recommendations	Pharmacotherapy is not recommended for core features of BPD, only as adjunctive and targeted treatment of discrete comorbid disorders.[61,62] In addition, pharmacotherapy may be applied in a mental health crisis, but for not longer than 1 week, using a single drug and a minimum effective dose.[61,62]
Risk management (suicidal behavior or intentions, self-harm, extreme anxiety, psychotic symptoms, uncontrolled behavior likely to endanger the patient or others)	Priority must be given to addressing life-threatening behaviors (eg, suicidal, self-mutilating, or high-risk behaviors, attacks against others). Verbal interventions include a calm attitude, understanding the crisis from a patient's point of view, empathetic open questions, and stimulating reflections about solutions.[61] Use antipsychotic or sedative medications to treat crises for no longer than 1 week.[62]
Understanding the meaning of self-harm (eg, cutting, burning)	Self-harm may serve different functions, eg, avoiding feelings of emptiness or dissociation, dampening painful emotions, or regulation of relationships by producing more closeness or distance.[55] Therapists may conclude an agreement with a patient about self-harm, implying, eg, that the patient should attend a clinician who treats the wound before the next session.
Understanding and managing suicidality[28,63]	• Clarify the acute danger of attempting suicide (eg, has a patient already developed a plan how to attempt suicide, has the patient previously made a suicide attempt, is impulse control severely impaired [eg, by substance misuse], is there a lack of social support system, or is the patient trustful with regard to agreements?). • Clarify whether there may be a discrete major depressive disorder, possibly requiring pharmacotherapy or inpatient treatment. • If not, clarify the trigger of the present suicidality (eg, interpersonal loss, shift from "all good" to "all bad"). • Suicide may be viewed by a patient as a solution of a problem (eg, stopping anxiety, despair, loneliness, emptiness, or anger). Discussing what makes life intolerable moves the focus from suicide to life's distresses. Other solutions may emerge. • Focus on "black-and-white" images of the self or of others related to the triggering situation (eg, "My mother again forgot my birthday. For me, she is no longer my mother!") Present alternative, more integrated, less sharply divided views. • Suicidal threats may be used by a patient to try to force a clinician not to "abandon" them (as others may have done). As a result, the clinician may also experience feelings of helplessness or anger. Clinicians are recommended not to counteract aggressively or emotionally in a way that might confirm the patient's experiences and expectations or imply responsibility for a patient's suicide attempts. • Make a contract that commits a patient not to act on suicidal impulses, but to discuss them in sessions or to go to emergency psychiatric services if they feel that suicidal impulses cannot be controlled. • Evidence-based psychotherapies for BPD include detailed recommendations how to treat suicidality.[28,29,64]
Referral to inpatient services	If acute crises cannot be managed by outpatient services, inpatient treatment may be required.

Abbreviations: BPD, borderline personality disorder; *DSM-5*, *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition).

take priority since these disorders will likely improve once BPD is controlled. In a randomized trial of 68 family members of patients with BPD, group psychoeducation about the disorder along with self-care and peer support skills reduced the emotional stress associated with BPD in family members compared with a wait-list control condition.[68] If specialized methods of psychotherapy are not available, experienced mental health professionals may apply psychoeducation (informing a patient about the disorder and its treatments) or manage acute crises using pharmacotherapy and clinical management as described in the Pharmacotherapy section.[69] Benefit for this generalist model of treating patients with BPD has emerged from several randomized clinical trials.[70-72] This type of care can be carried out by experienced clinicians without training in the specialized methods of psychotherapy discussed below.[69]

Pharmacotherapy

Although the 2001 American Psychiatric Association practice guidelines for BPD recommended antidepressants such as fluoxetine, sertraline, or venlafaxine; mood stabilizers such as lithium carbonate, carbamazepine, or valproate; antipsychotics such as haloperidol; monoamine oxidase inhibitors such as phenelzine or tranylcypromine; or benzodiazepines such as alprazolam or clonazepam for affective dysregulation and impulsive behavior dyscontrol, new evidence has accumulated since these guidelines were published.[73] No class of psychoactive medication has been consistently effective in treating BPD in randomized clinical trials, and therefore no medications have been approved by the US Food and Drug Administration or licensed for use in BPD in the UK.[7,74-76] For these reasons, the UK National Institute for Health and Care Excellence (NICE) guideline does not recommend pharmacotherapy to treat any core symptom of BPD (eg, marked emotional instability, transient stress-related paranoid ideation).[61,62] This is consistent with reviews of functional magnetic resonance imaging studies showing that pharmacotherapy does not induce changes in brain activity or brain connectivity,[77] whereas psychotherapy appears to alter neural activities and connectivity of regions subserving executive control and emotion regulation.[78] The NICE guideline recommends pharmacotherapy in BPD only for discrete and severe comorbid disorders such as severe depressive disorders, including suicidal ideation or severe anxiety disorders. For these types of comorbid disorders in BPD, selective serotonin reuptake inhibitors such as escitalopram, sertraline, or fluoxetine may be used. Antipsychotic drugs are not recommended by the NICE guideline for medium- or long-term treatment of BPD. For specific recommendations regarding the treatment of comorbid conditions in BPD, NICE recommends consulting the NICE clinical guidelines for the respective disorders. Few randomized clinical trials have focused on BPD with distinct comorbidities.[76] Most randomized clinical trials of pharmacotherapy excluded patients with comorbid major depressive disorder, bipolar disorder, psychotic disorders, or substance-related disorders, limiting available evidence for patients with BPD and these comorbidities.[76] For the management of crises in BPD as defined above, NICE recommends verbal intervention (eg, trying to understand a crisis from a patient's view) (Table 1) and short-term pharmacotherapy using a single drug, with the minimum effective dose or prescribing fewer tablets more frequently if there is a risk of overdose.[61] For treatment of acute crises in BPD, sedative antihistamines (eg, promethazine) or low-potency antipsychotics (eg, quetiapine), but not benzodiazepines (eg, diazepam, lorazepam), may be used as part of an overall treatment plan agreed on by all participating clinical practitioners (**Table 2**).[62] The duration of pharmacological treatment should be agreed on with the patient and is not recommended for longer than 1 week.[61,62] Sedative antihistamines such as promethazine, however, are not licensed in either the US or in the UK for BPD; therefore, informed consent should be obtained and documented.[61] This includes informing patients that promethazine is associated with abuse[80] and should be used with caution in a disorder in which patients have higher rates of substance abuse. For insomnia in BPD, general advice about sleep hygiene without medication prescription is recommended. For short-term management of insomnia, "Z-drugs" (eg, zolpidem or eszopiclone) may be prescribed.[61] Due to concerns about dependency, use of Z-drugs is recommended only for severe insomnia, with the lowest dose possible and for no longer than 4 weeks.[81] Short-term symptoms of depression or anxiety that are part of BPD emotional instability and that can be related to specific triggering situations such as interpersonal problems should not be misinterpreted as comorbid disorders and should be treated solely with psychotherapy.

Table 2. Epidemiology, Impairment, and Treatment of Borderline Personality Disorder

	Prevalence rate, duration, or type of treatment
Lifetime prevalence[79]	2.7%
Female vs male	
Community samples, lifetime prevalence[6]	4% vs 3.4%
Outpatient clinical settings[5]	72% vs 28%
Social and vocational impairment[13]	
Married or living with partner	16%
Good work or school performance	34%
Life expectancy	
Reduction of life expectancy[9]	6-7 Years
Mortality by suicide[12]	2%-5% (Mean, 4%)
Lifetime high comorbidity with other mental disorders[6]	
Anxiety disorders	84.8%
Mood disorder	82.7%
Substance use disorder	78.2%
Treatment	
First-line treatment: evidence-based psychotherapy	Dialectical behavior therapy, psychodynamic therapy
Pharmacotherapy for discrete and severe comorbid disorders (eg, depressive disorders, anxiety disorders)	Selective serotonin reuptake inhibitors such as escitalopram, sertraline, or fluoxetine
Pharmacotherapy or for short-term treatment of acute crisis	Antihistamines or low-potency antipsychotics (ie, promethazine, quetiapine) rather than benzodiazepines (eg, diazepam, lorazepam)
Treatment of borderline personality disorder–associated insomnia	Sleep hygiene and short-term use of Z-drugs (eg, zolpidem) for severe insomnia, with the lowest dose possible and for no longer than 4 weeks

Psychotherapy

Psychotherapy is first-line treatment for BPD and should be recommended to all patients with BPD.[7,61,82] Several meta-analyses of

Table 3. Summary of Meta-analyses of Psychotherapy for BPD: Forms and Efficacy

No. of patients	No. of RCTs	Form of psychotherapy	Comparator	Outcome	Effect size SMD (95% CI)[a]
Storebø et al,[60] 2020					
1244	22	Major forms of psychotherapy[b]	Usual care	Severity of BPD symptoms	−0.52 (−0.70 to −0.33)
616	13	Major forms of psychotherapy[b]	Usual care	Self-harm	−0.32 (−0.49 to −0.14)
666	13	Major forms of psychotherapy[b]	Usual care	Suicide-related outcomes	−0.34 (−0.57 to −0.11)
1314	22	Major forms of psychotherapy[b]	Usual care	Psychosocial functioning	−0.45 (−0.68 to −0.22)
149	3	Dialectical behavior therapy	Usual care	Severity of BPD symptoms	−0.60 (−1.05 to −0.14)
376	7	Dialectical behavior therapy	Usual care	Self-harm	−0.28 (−0.48 to −0.07)
225	6	Dialectical behavior therapy	Usual care	Psychosocial functioning	−0.36 (−0.69 to −0.03)
Barber et al,[83] 2021[c]					
213	4	Psychodynamic therapy	Usual care	Severity of BPD symptoms	−0.65 (−0.99 to −0.32)
354	5	Psychodynamic therapy	Usual care	Suicide-related outcomes	−0.67 (−1.13 to −0.20)
392	5	Psychodynamic therapy	Usual care	Psychosocial functioning	−0.57 (−1.04 to −0.10)

Abbreviations: BPD, borderline personality disorder; RCT, randomized clinical trial; SMD, standardized mean difference.

[a] The SMD was calculated as the difference between the means of the treatment group and the comparator group after treatment, divided by the pooled standard deviation ($M_t - M_c$/SD); SMDs of 0.20, 0.50, and 0.80 are regarded as small, medium, or large effect sizes.[84]

[b] Major forms of psychotherapy include dialectical behavior therapy, psychodynamic therapy, cognitive behavior therapy, schema-focused therapy, and acceptance and commitment therapy.

[c] John R. Keefe, written communication of data for comparison of psychodynamic therapy with usual care for the meta-analysis by Barber et al,[83] November 3, 2021.

randomized clinical trials have shown that psychotherapy is associated with benefit for patients with BPD (**Table 3**). A Cochrane series of meta-analyses that included a total of 75 randomized clinical trials with 4507 patients provided evidence regarding efficacious therapies for BPD.[60] For example, in a meta-analysis of 22 randomized clinical trials with 1244 patients comparing psychotherapy with usual care, psychotherapy was associated with significant improvement in symptom severity compared with usual care, with a medium effect size (standardized mean difference [SMD], −0.52) (Table 3).[60] This effect size exceeded the minimum clinically relevant difference for BPD symptom severity (SMD, 0.43) and represented a clinically relevant reduction.[60] Psychotherapy was not associated with higher rates of adverse effects compared with usual care (risk ratio, 0.86; 95% CI, 0.14-5.09; P = .86 [4 trials; n = 571]).[60] Several types of psychotherapy for BPD exist (eTable in the Supplement). A subgroup analysis from the Cochrane meta-analysis[60] compared dialectical behavior therapy, psychodynamic therapy, cognitive behavior therapy, and eclectic therapy in data from 17 randomized clinical trials and 1045 patients. There were no significant differences between these treatments for the outcome of symptom severity or psychosocial functioning (P = .88). Dialectical behavior therapy, a form of cognitive behavior therapy specifically developed for treatment of BPD, focuses on increasing a patient's motivation to engage in treatment and problem-solving strategies, and uses group skills training to help regulate emotions and interpersonal relationships and telephone coaching in times of crises between regular sessions (eTable in the Supplement). Compared with usual care, dialectical behavior therapy was associated with a medium between-group effect size (SMD) of −0.60 for improving BPD severity (Table 3) and small between-group effect sizes for self-harm (SMD, −0.28) and psychosocial functioning (SMD, −0.36), with low to moderate heterogeneity (I^2 = 42%, 0%, and 31%, respectively).[60] Psychodynamic therapy proved to be efficacious in treatment of BPD as well.[83] Psychodynamic therapy includes a family of psychotherapeutic approaches that focus on identification of recurring patterns of behavior related to the self and others, including the therapeutic relationship, expression of emotion, exploration of defensive (avoidance) patterns, and discussion of past experiences that have an effect on a patient's present experiences.[85] Specific forms of psychodynamic therapy have been developed that tailor treatment specifically to BPD, such as transference-focused psychotherapy and mentalization-based therapy (eTable in the Supplement). In a meta-analysis that included 16 randomized clinical trials and 1081 participants, psychodynamic therapy was associated with medium between-group effect sizes compared with usual care (Table 3) for the outcomes of core BPD symptoms (SMD, −0.65), suicide-related outcomes (SMD, −0.67), and psychosocial functioning (SMD, −0.57), with low or moderate heterogeneity (I^2 = 15%, 40%, and 60%, respectively) (John R. Keefe, written communication of data for comparison of psychodynamic therapy with usual care for the meta-analysis by Barber et al,[83] November 3, 2021).

However, many studies of psychotherapy for BPD had a high risk of bias assessed by the Cochrane risk-of-bias tool, and the quality of evidence, assessed by the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system,[86] was moderate.[60] High risk of bias as well as publication bias found in some meta-analyses may have increased the observed effect sizes.[60,87] Furthermore, most observed treatment benefits were not durable and were no longer present 6 months or more after the end of treatment.[60,87] A meta-analysis of 28 randomized clinical trials and 2436 participants reported that psychotherapy was associated with a treatment nonresponse rate of 48.8%,[88] suggesting that approximately half of the patients did not benefit from the treatments. However, the studies included in this meta-analysis defined treatment response differently, for example, as a reduction of 25% or 50% of symptoms or as no longer meeting criteria for BPD.[88] As a limitation, the nonresponse rate of 48.8% was combined from studies that defined nonresponse differently.

Prognosis

An observational study of 290 patients with BPD reported that over a 10-year period, 50% recovered, defined as symptomatic remission and good social and vocational functioning over a 2-year period.[89] Among the patients who recovered, 34% lost their recovery and 30% had a recurrence of BPD symptoms and diagnosis after a 2-year long remission.[89] (In these studies, recovery was defined as symptomatic recovery in combination with excellent social and vocational functioning over 2 years. Recurrence was defined as recurrence of classic BPD symptoms.) In contrast, 93% of BPD patients attained remission from BPD lasting 2 years and 86% attained remission lasting 4 years.[89] Excellent recovery, defined as remission of BPD or other personality disorders and good social and full-time vocational functioning, occurred in 39% of patients with BPD compared with 73% of patients with other personality disorders.[90] However, most individuals with BPD in these longitudinal studies received pharmacotherapy or psychotherapy. Therefore, these remission rates may be better than the natural history of untreated BPD over time and might be related to these therapies.[91] A meta-analysis of 837 patients from 11 studies who were followed up for at least 5 years reported remission rates between 50% and 70%, with a mean remission rate of 60%.[11] However, the meta-analysis had high heterogeneity between studies (I^2 = 80.9%).[11] In addition, this meta-analysis reported improvement in depression and functioning. Mean suicide rates ranged from 2% to 5%.[11] Social functioning varied over time and was highly associated with symptomatic status.[13,91] While some patients attained good social functioning for the first time, others lost their gains.[92] Changes in personality traits (defined by the 5-factor model, including neuroticism, extraversion, openness, conscientiousness, and agreeableness) were followed by changes in BPD personality disorder criteria; however, the reverse did not occur.[93] Traits of neuroticism and conscientiousness were more unstable over time, showing more variation in BPD than in patients with other personality disorders, indicating a "stable instability."[94,95]

Early intervention consists of identification and treatment of BPD in adolescents and individuals with subthreshold BPD features or improving parenting behavior in parents with BPD.[96] However, currently there is no high-quality evidence that early intervention or prevention programs improve outcomes in patients with BPD.

Limitations

This Review has several limitations. First, the literature search was restricted to English and German languages. Second, a formal assessment of literature quality was not performed. Third, some relevant articles may have been missed. Fourth, some recommendations are based on relatively poor-quality evidence or expert opinion. Fifth, clinical practice guidelines were included, which are often based in part on expert opinion.

Conclusions

Borderline personality disorder affects approximately 0.7% to 2.7% of adults and is associated with functional impairment and greater use of medical services. Psychotherapy with dialectical behavior therapy and psychodynamic therapy are first-line therapies for BPD, while psychoactive medications do not improve the primary symptoms of BPD.

ARTICLE INFORMATION

Accepted for Publication: January 16, 2023.

Conflict of Interest Disclosures: None reported.

Submissions: We encourage authors to submit papers for consideration as a Review. Please contact Mary McGrae McDermott, MD, at mdm608@northwestern.edu.

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