Public Mental Health Research – Resource Guide

Center for Trauma and Mental Health

Boston University School of Public Health

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Introduction

Despite billions of dollars invested into psychiatry annually in the United States and worldwide, mental illness remains an urgent public health concern both nationally and globally.

We've created this introductory guide to mental health research for public health researchers to offer an overview of several critical domains of psychopathology and describe how they may be incorporated into research studies. In each major section, representing an area of pathology, we present a selection of common disorders within that area, including their prevalence, criteria, assessment methods, and likely comorbidities.

Note that the disorders presented herein do not represent the full spectrum of psychopathology within each mental illness domain, nor do the illness domains cover everything defined in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) *IV* or *DSM-5*. We chose these major sections – depressive, anxiety, trauma- and stressor-related, and substance use disorders – because their prevalence, morbidity, and/or mortality make them critical public health concerns. To explore these and similar topics in greater detail, we provide a list of additional recommended resources in the concluding section.

We hope this guide will support individuals in incorporating assessments of trauma, mental health, and substance use in their existing public health research. If you have further questions about conducting public mental health research, or if you have suggestions for this document, please contact us at ctmh@bu.edu.

Dr. Jaimie Gradus and Michelle Flesaker
Center for Trauma and Mental Health
Boston University School of Public Health

I. Depressive Disorders

Major Depressive Disorder

Prevalence

U.S. lifetime adult prevalence (CDC, age-standardized, 2020): 18.5%[1]
Worldwide adult prevalence: 5% (WHO)[2]

Diagnostic and Statistical Manual of Mental Disorders (DSM) Criteria

DSM-5[3]

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

   Note: Do not include symptoms that are clearly attributable to another medical condition.

   1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful). (**Note:** In children and adolescents, can be irritable mood.)
   2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation).
   3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. (**Note:** In children, consider failure to make expected weight gain.)
   4. Insomnia or hypersomnia nearly every day.
   5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).
   6. Fatigue or loss of energy nearly every day.
   7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).
   8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).
   9. Recurrent thoughts of death (not just fear of dying); recurrent suicidal ideation without a specific plan; a specific suicide plan; or a suicide attempt.

B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

C. The episode is not attributable to the physiological effects of a substance or another medical condition.

   Note: Criteria A–C represent a major depressive episode.

D. At least one major depressive episode is not better explained by schizoaffective disorder and is not superimposed on schizophrenia, schizophreniform disorder, delusional disorder, or other specified and unspecified schizophrenia spectrum and other psychotic disorders.

E. There has never been a manic episode or a hypomanic episode.

Additional notes on major depression criteria are available in the DSM-5: dsm.psychiatryonline.org

DSM-IV[4]

Diagnostic criteria for Major Depressive Episode:

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.
   Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.
   1. depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). **Note:** In children and adolescents, can be irritable mood.
   2. markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)
   3. significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. **Note:** In children, consider failure to make expected weight gains.
   4. insomnia or hypersomnia nearly every day
   5. psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
   6. fatigue or loss of energy nearly every day
   7. feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
   8. diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)
   9. recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide
B. The symptoms do not meet criteria for a Mixed Episode (see DSM-IV text).
C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).
E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

Diagnostic criteria for Major Depressive Disorder, Recurrent:

A. Presence of two or more Major Depressive Episodes (see above).

Note: To be considered separate episodes, there must be an interval of at least 2 consecutive months in which criteria are not met for a Major Depressive Episode.

B. The Major Depressive Episodes are not better accounted for by Schizoaffective Disorder and are not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.
C. There has never been a Manic Episode (see p. 332), a Mixed Episode (see p. 335), or a Hypomanic Episode (see p. 338).

Major changes between DSM-IV and DSM-5

There are only minimal differences between DSM-5 and DSM-IV criteria for major depressive episode or major depressive disorder. A detailed description of the differences is provided by the American Psychiatric Association (APA) and relate to a) classification of coexisting manic and depressive symptoms and b) removal of the exclusion of symptoms related to bereavement from consideration.[5]

Disorder Assessment

Interview-based assessment options

1. Hamilton Rating Scale for Depression (HAM-D): frequently used scale created in 1960 to assess depression severity;[6] available in six-[7] and original seventeen-item forms; generally considered to be valid and reliable but has received some criticism.[8,9]
2. Montgomery-Åsberg Depression Rating Scale (MADRS): second most widely used scale by clinicians to assess depression severity, developed in 1979;[10] considered to be valid and reliable.[11]
3. Composite International Diagnostic Interview-Short Form (CIDI-SF): an interview instrument designed to assess mental disorders, including major depression, in accordance with the DSM-IV; considered to be valid and reliable with cutoff scoring available.[12]

Self-report and survey-based assessment options

1. Patient Health Questionnaire-9 (PHQ-9): very common scale (2001) as a survey to assess major depression with high reliability and validity;[13] established cutoff of ≥10 for moderate depression, with additional cutoffs for mild, moderately severe, and severe depression.[13]
2. Beck Depression Inventory (BDI): common scale by Beck et al. (1961)[14] with updated version BDI-II (1996)[15] with good psychometric properties;[16] an established cutoff at ≥20 for moderate depression, with additional cutoffs for mild and severe.
3. Center for Epidemiologic Studies Depression Scale (CES-D)[17]: frequently used survey scale with good reliability and validity; has an established cutoff of ≥16 for mild/significant depressive symptomology.

Note that other validated options are available for specific populations, including the Children's Depression Inventory,[18] and Geriatric Depression Scale.[19]

Likely Comorbidities

Among psychiatric illnesses, anxiety and substance use disorders are most frequently comorbid with major depressive disorder.[20,21] Several other diseases are also often comorbid with depression, including cardiovascular, metabolic, and neurological conditions.[21,22]

II. Anxiety Disorders

Generalized Anxiety Disorder

Prevalence

U.S. adult prevalence: past year, 2.7%; lifetime, 5.7%; past year, all anxiety disorders, 19.1% (NIMH)[27]
Worldwide adult current prevalence (all anxiety disorders): 4% (WHO)[28]

Diagnostic and Statistical Manual of Mental Disorders (DSM) Criteria

DSM-5[3]

A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).
B. The individual finds it difficult to control the worry.
C. The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms having been present for more days than not for the past 6 months):
   Note: Only one item is required in children.
   1. Restlessness or feeling keyed up or on edge.
   2. Being easily fatigued.
   3. Difficulty concentrating or mind going blank.
   4. Irritability.
   5. Muscle tension.
   6. Sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep).
D. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
E. The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (e.g., hyperthyroidism).
F. The disturbance is not better explained by another mental disorder (e.g., anxiety or worry about having panic attacks in panic disorder, negative evaluation in social anxiety disorder, contamination or other obsessions in obsessive-compulsive disorder, separation from attachment figures in separation anxiety disorder, reminders of traumatic events in posttraumatic stress disorder, gaining weight in anorexia nervosa, physical complaints in somatic symptom disorder, perceived appearance flaws in body dysmorphic disorder, having a serious illness in illness anxiety disorder, or the content of delusional beliefs in schizophrenia or delusional disorder).

DSM-IV[4]

A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).
B. The person finds it difficult to control the worry.

C. The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms present for more days than not for the past 6 months). **Note:** Only one item is required in children.
    1. restlessness or feeling keyed up or on edge
    2. being easily fatigued
    3. difficulty concentrating or mind going blank
    4. irritability
    5. muscle tension
    6. sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)
D. The focus of the anxiety and worry is not confined to features of an Axis I disorder, e.g., the anxiety or worry is not about having a Panic Attack (as in Panic Disorder), being embarrassed in public (as in Social Phobia), being contaminated (as in Obsessive-Compulsive Disorder), being away from home or close relatives (as in Separation Anxiety Disorder), gaining weight (as in Anorexia Nervosa), having multiple physical complaints (as in Somatization Disorder), or having a serious illness (as in Hypochondriasis), and the anxiety and worry do not occur exclusively during Posttraumatic Stress Disorder.
E. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism) and does not occur exclusively during a Mood Disorder, a Psychotic Disorder, or a Pervasive Developmental Disorder.

Major changes between DSM-IV and DSM-5

The criteria for generalized anxiety disorder between DSM-IV and DSM-5 are essentially unchanged.[5]

Disorder Assessment

Interview-based assessment options

1. World Health Organization Composite International Diagnostic Interview short-form (CIDI-SF): an interview-based measure with particularly high reliability and validity for generalized anxiety disorder.[29,30]

Self-report and survey-based assessment options

1. Generalized Anxiety Disorder Scale (GAD-7): a common self-report measure for anxiety with high reliability and validity;[31] established cutoff of ≥10 for moderate anxiety, with additional cutoffs for mild and severe anxiety.
    a. There is also a reliable and valid 2-item version, the GAD-2.[32]
2. Beck Anxiety Inventory (BAI): a 21-item survey by Beck et al. (1988), self-report measure to assess anxiety severity with good validity and reliability.[33]

Likely Comorbidities

Generalized anxiety disorder is most often comorbid with major depressive disorder, posttraumatic stress disorder (PTSD), social anxiety disorder, panic disorder, specific phobias, and alcohol and substance use disorders. In terms of somatic complaints, it's also often comorbid with insomnia and chronic pain.[34]

Social Anxiety Disorder

Prevalence

U.S. adult prevalence: estimates range, 5-12% (lifetime) to 3-7% (past year)[35]
Worldwide adult current prevalence (all anxiety disorders): 4% (WHO)[28]

Diagnostic and Statistical Manual of Mental Disorders (DSM) Criteria

DSM-5[3]

A. Marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others. Examples include social interactions (e.g., having a conversation, meeting unfamiliar people), being observed (e.g., eating or drinking), and performing in front of others (e.g., giving a speech).
   Note: In children, the anxiety must occur in peer settings and not just during interactions with adults.
B. The individual fears that he or she will act in a way or show anxiety symptoms that will be negatively evaluated (i.e., will be humiliating or embarrassing; will lead to rejection or offend others).
C. The social situations almost always provoke fear or anxiety.
   Note: In children, the fear or anxiety may be expressed by crying, tantrums, freezing, clinging, shrinking, or failing to speak in social situations.
D. The social situations are avoided or endured with intense fear or anxiety.
E. The fear or anxiety is out of proportion to the actual threat posed by the social situation and to the sociocultural context.
F. The fear, anxiety, or avoidance is persistent, typically lasting for 6 months or more.
G. The fear, anxiety, or avoidance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
H. The fear, anxiety, or avoidance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.
I. The fear, anxiety, or avoidance is not better explained by the symptoms of another mental disorder, such as panic disorder, body dysmorphic disorder, or autism spectrum disorder.
J. If another medical condition (e.g., Parkinson's disease, obesity, disfigurement from burns or injury) is present, the fear, anxiety, or avoidance is clearly unrelated or is excessive.

DSM-IV[4]

A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing. Note: In children, there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults.

B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed Panic Attack. **Note:** In children, the anxiety may be expressed by crying, tantrums, freezing, or shrinking from social situations with unfamiliar people.
C. The person recognizes that the fear is excessive or unreasonable. **Note:** In children, this feature may be absent.
D. The feared social or performance situations are avoided or else are endured with intense anxiety or distress.
E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.
F. In individuals under age 18 years, the duration is at least 6 months.
G. The fear or avoidance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., Panic Disorder With or Without Agoraphobia, Separation Anxiety Disorder, Body Dysmorphic Disorder, a Pervasive Developmental Disorder, or Schizoid Personality Disorder).
H. If a general medical condition or another mental disorder is present, the fear in Criterion A is unrelated to it, e.g., the fear is not of Stuttering, trembling in Parkinson's disease, or exhibiting abnormal eating behavior in Anorexia Nervosa or Bulimia Nervosa.

Major changes between DSM-IV and DSM-5

There is no longer a requirement that adults diagnosed with social anxiety disorder recognize that "the fear is excessive or unreasonable", and the 6-month criteria applies to all ages.[5] Otherwise, the criteria are similar between editions.

Disorder Assessment

Interview-based assessment options

1. World Health Organization Composite International Diagnostic Interview short-form (CIDI-SF): an interview-based measure which covers several disorders with high reliability and validity for social phobia (DSM-IV).[29,30]

Self-report and survey-based assessment options

1. The Liebowitz Social Anxiety Scale (LSAS): a more-extensively studied self-report questionnaire to measure social anxiety with good reliability and validity.[36]
2. Social Phobia and Anxiety Inventory (SPAI): a self-report questionnaire to measure social anxiety with adequate reliability and validity.[37]

Likely Comorbidities

Social Anxiety Disorder is often comorbid with major depressive disorder, other anxiety disorders (specific phobias, panic disorder, agoraphobia, and generalized anxiety disorder), obsessive compulsive disorder, and alcohol use disorder.[38]

Panic Disorder

Prevalence

U.S. adult lifetime prevalence: 5%[39]
Worldwide adult current prevalence (all anxiety disorders): 4% (WHO)[28]

Diagnostic and Statistical Manual of Mental Disorders (DSM) Criteria

DSM-5[3]

A. Recurrent unexpected panic attacks. A panic attack is an abrupt surge of intense fear or intense discomfort that reaches a peak within minutes, and during which time four (or more) of the following symptoms occur:

   Note: The abrupt surge can occur from a calm state or an anxious state.

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

   Note: Culture-specific symptoms (e.g., tinnitus, neck soreness, headache, uncontrollable screaming or crying) may be seen. Such symptoms should not count as one of the four required symptoms.

B. At least one of the attacks has been followed by 1 month (or more) of one or both of the following:
   1. Persistent concern or worry about additional panic attacks or their consequences (e.g., losing control, having a heart attack, "going crazy").
   2. A significant maladaptive change in behavior related to the attacks (e.g., behaviors designed to avoid having panic attacks, such as avoidance of exercise or unfamiliar situations).

C. The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (e.g., hyperthyroidism, cardiopulmonary disorders).

D. The disturbance is not better explained by another mental disorder (e.g., the panic attacks do not occur only in response to feared social situations, as in social anxiety disorder; in response to circumscribed phobic objects or situations, as in specific phobia; in response to obsessions,

as in obsessive-compulsive disorder; in response to reminders of traumatic events, as in posttraumatic stress disorder; or in response to separation from attachment figures, as in separation anxiety disorder).

DSM-IV[4]

Criteria for Panic Attack:

A discrete period of intense fear or discomfort, in which four (or more) of the following symptoms developed abruptly and reached 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 (numbness or tingling sensations)
13. chills or hot flushes

Diagnostic criteria for Panic Disorder Without Agoraphobia:

A. Both (1) and (2):
    1. recurrent unexpected Panic Attacks
    2. at least one of the attacks has been followed by 1 month (or more) of one (or more) of the following:
        a. persistent concern about having additional attacks
        b. worry about the implications of the attack or its consequences (e.g., losing control, having a heart attack, "going crazy")
        c. a significant change in behavior related to the attacks
B. Absence of Agoraphobia.
C. The Panic Attacks are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism).
D. The Panic Attacks are not better accounted for by another mental disorder, such as Social Phobia (e.g., occurring on exposure to feared social situations), Specific Phobia (e.g., on exposure to a specific phobic situation), Obsessive-Compulsive Disorder (e.g., on exposure to dirt in someone with an obsession about contamination), Posttraumatic Stress Disorder (e.g., in response to stimuli associated with a severe stressor), or Separation Anxiety Disorder (e.g., in response to being away from home or close relatives).

Diagnostic criteria for Panic Disorder With Agoraphobia:

A. Both (1) and (2):
    1. Recurrent unexpected Panic Attacks
    2. At least one of the attacks has been followed by 1 month (or more) of one (or more) of the following:
        a. persistent concern about having additional attacks
        b. worry about the implications of the attack or its consequences (e.g., losing control, having a heart attack, "going crazy")
        c. a significant change in behavior related to the attacks
B. The presence of Agoraphobia (see p. 396).
C. The Panic Attacks are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism).

Major changes between DSM-IV and DSM-5

Agoraphobia and panic disorder are no longer linked in DSM-5 and are instead treated as two separate, potentially co-occurring diagnoses.[5] Otherwise, the criteria for panic disorder are very similar between editions.

Disorder Assessment

Interview-based assessment options

1. Panic Disorder Severity Scale (PDSS): an interview-based measure that can assess how severe existing Panic Disorder is but does not indicate the presence or absence of the disorder. It has been validated in clinical samples with cutoffs provided in the literature (Furukawa, 2009).[40,41]

Self-report and survey-based assessment options

1. Panic Disorder Self Report: a valid and reliable self-report measure to screen for the presence of Panic Disorder.[42]
2. Panic Disorder Severity Scale – self report: is a reliable self-report measure of Panic Disorder severity in clinical samples.[43]

Likely Comorbidities

Panic disorder is often comorbid with major depressive disorder, other anxiety disorders (including specific phobias and social anxiety disorder), and alcohol use disorder.[44]

III. Trauma- and Stressor-Related Disorders

Posttraumatic Stress Disorder (PTSD)

Prevalence

U.S. adult prevalence: 6-9% (lifetime)[45], 5% (annual)[46]
Worldwide adult lifetime prevalence: 3.9% (WHO)[47]

Diagnostic and Statistical Manual of Mental Disorders (DSM) Criteria

DSM-5[3]

Note: The following criteria apply to adults, adolescents, and children older than 6 years. For children 6 years and younger, see corresponding criteria below.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
    1. Directly experiencing the traumatic event(s).
    2. Witnessing, in person, the event(s) as it occurred to others.
    3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
    4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).
       Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.
B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
    1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
       Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
    2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).
       Note: In children, there may be frightening dreams without recognizable content.
    3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)
       Note: In children, trauma-specific reenactment may occur in play.
    4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
    5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:
    1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
    2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
    1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
    2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined").
    3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
    4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
    5. Markedly diminished interest or participation in significant activities.
    6. Feelings of detachment or estrangement from others.
    7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
    1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
    2. Reckless or self-destructive behavior.
    3. Hypervigilance.
    4. Exaggerated startle response.
    5. Problems with concentration.
    6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.
G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

Children 6 years and younger:

1. In children 6 years and younger, exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
    1. Directly experiencing the traumatic event(s).

2. Witnessing, in person, the event(s) as it occurred to others, especially primary caregivers.
3. Learning that the traumatic event(s) occurred to a parent or caregiving figure.

2. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
    1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
    Note: Spontaneous and intrusive memories may not necessarily appear distressing and may be expressed as play reenactment.
    2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).
    Note: It may not be possible to ascertain that the frightening content is related to the traumatic event.
    3. Dissociative reactions (e.g., flashbacks) in which the child feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Such trauma-specific reenactment may occur in play.
    4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
    5. Marked physiological reactions to reminders of the traumatic event(s).
3. One (or more) of the following symptoms, representing either persistent avoidance of stimuli associated with the traumatic event(s) or negative alterations in cognitions and mood associated with the traumatic event(s), must be present, beginning after the event(s) or worsening after the event(s):

    Persistent Avoidance of Stimuli
    1. Avoidance of or efforts to avoid activities, places, or physical reminders that arouse recollections of the traumatic event(s).
    2. Avoidance of or efforts to avoid people, conversations, or interpersonal situations that arouse recollections of the traumatic event(s).

    Negative Alterations in Cognitions
    3. Substantially increased frequency of negative emotional states (e.g., fear, guilt, sadness, shame, confusion).
    4. Markedly diminished interest or participation in significant activities, including constriction of play.
    5. Socially withdrawn behavior.
    6. Persistent reduction in expression of positive emotions.
4. Alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
    1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects (including extreme temper tantrums).
    2. Hypervigilance.

3. Exaggerated startle response.
4. Problems with concentration.
5. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

5. The duration of the disturbance is more than 1 month.
6. The disturbance causes clinically significant distress or impairment in relationships with parents, siblings, peers, or other caregivers or with school behavior.
7. The disturbance is not attributable to the physiological effects of a substance (e.g., medication or alcohol) or another medical condition.

DSM-IV[4]

A. The person has been exposed to a traumatic event in which both of the following were present:
    1. the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
    2. the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behavior
B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
    1. recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. **Note:** In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
    2. recurrent distressing dreams of the event. **Note:** In children, there may be frightening dreams without recognizable content.
    3. acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). **Note:** In young children, trauma-specific reenactment may occur.
    4. intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
    5. physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
    1. efforts to avoid thoughts, feelings, or conversations associated with the trauma
    2. efforts to avoid activities, places, or people that arouse recollections of the trauma
    3. inability to recall an important aspect of the trauma
    4. markedly diminished interest or participation in significant activities
    5. feeling of detachment or estrangement from others
    6. restricted range of affect (e.g., unable to have loving feelings)
    7. sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:
    1. difficulty falling or staying asleep
    2. irritability or outbursts of anger
    3. difficulty concentrating
    4. hypervigilance
    5. exaggerated startle response
E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.
F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Major changes between DSM-IV and DSM-5

There are major changes between PTSD criteria in DSM-IV and DSM-5.[5] The traumatic event/stressor criteria, there is more detail in DSM-5 about ways in which one may experience the stressor. There is also an additional "symptom cluster" in DSM-5, as avoidance symptoms and negative affect symptoms are distinguished, and there are also changes in the content of those mood symptoms. Additional symptoms related to irritability, aggressiveness, and self-destructive behavior are also added in DSM-5. Finally, in DSM-5, there are separate criteria for children under 6 years to address differences in presentation by age.

Disorder Assessment

Interview-based assessment options

1. Clinician-Administered PTSD Scale for DSM-5 (CAPS-5): gold-standard structured interview for diagnosis of PTSD and assessment of severity.[48,49] Scoring information is provided in the instrument.
2. PTSD Symptom Scale – Interview for DSM-5 (PSS-I-5): a reliable and valid interview measure for diagnosis of PTSD.[50]

Self-report and survey-based assessment options

1. PTSD Checklist for DSM-5 (PCL-5): a self-report measure of PTSD with high reliability and validity.[51] Values ≥33 indicate likely presence of PTSD.
2. Child and Adolescent Trauma Screen (CATS): a self-report measure of PTSD in children and adolescents (aged 7-17) with high reliability and validity.[52] Values ≥7 to ≥9 indicate probable presence of PTSD.

Likely Comorbidities

PTSD is often comorbid with major depressive disorder, alcohol and other substance use disorders, and anxiety disorders. In terms of physical comorbidities, PTSD often cooccurs with cardiovascular, metabolic, respiratory, neurologic, and bone/joint disease.[45]

IV. Substance Use Disorders

Alcohol Use Disorder

Prevalence

U.S. adult prevalence: 11.2% (past year, NIAAA)[59] to 13.9% (past year, NESARC-III),[60] 29.1% (lifetime, NESARC-III)[60]
Worldwide adult prevalence: 7% (past year, WHO)[61]

Diagnostic and Statistical Manual of Mental Disorders (DSM) Criteria

DSM-5[3]

A. A problematic pattern of alcohol use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:
    1. Alcohol is often taken in larger amounts or over a longer period than was intended.
    2. There is a persistent desire or unsuccessful efforts to cut down or control alcohol use.
    3. A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects.
    4. Craving, or a strong desire or urge to use alcohol.
    5. Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home.
    6. Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol.
    7. Important social, occupational, or recreational activities are given up or reduced because of alcohol use.
    8. Recurrent alcohol use in situations in which it is physically hazardous.
    9. Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol.
    10. Tolerance, as defined by either of the following:
        a. A need for markedly increased amounts of alcohol to achieve intoxication or desired effect.
        b. A markedly diminished effect with continued use of the same amount of alcohol.
    11. Withdrawal, as manifested by either of the following:
        a. The characteristic withdrawal syndrome for alcohol (refer to Criteria A and B of the criteria set for alcohol withdrawal).
        b. Alcohol (or a closely related substance, such as a benzodiazepine) is taken to relieve or avoid withdrawal symptoms.

DSM-IV[4]

Diagnostic criteria for Substance Dependence:
A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. tolerance, as defined by either of the following:
    a) a need for markedly increased amounts of the substance to achieve intoxication or desired effect
    b) markedly diminished effect with continued use of the same amount of the substance
2. withdrawal, as manifested by either of the following:
    a) the characteristic withdrawal syndrome for the substance (refer to Criteria A and B of the criteria sets for Withdrawal from the specific substances)
    b) the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms
3. the substance is often taken in larger amounts or over a longer period than was intended
4. there is a persistent desire or unsuccessful efforts to cut down or control substance use
5. a great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects
6. important social, occupational, or recreational activities are given up or reduced because of substance use
7. the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption)

Diagnostic criteria for Substance Abuse

A. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period:
    1. recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household)
    2. recurrent substance use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance use)
    3. recurrent substance-related legal problems (e.g., arrests for sub- stance-related disorderly conduct)
    4. continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance (e.g., arguments with spouse about consequences of intoxication, physical fights)
B. The symptoms have never met the criteria for Substance Dependence for this class of substance.

<u>Major changes between DSM-IV and DSM-5</u>

DSM-IV separated substance dependence and substance abuse, which were combined into the single substance use disorder criteria for DSM-5.[5] DSM-5 also includes separate diagnoses for

different substance use disorders. DSM-5 also removes the legal troubles criteria and changes the threshold of number of symptoms required for diagnosis.

Disorder Assessment

Interview-based assessment options

1. The Alcohol Use Disorders Identification Test Adapted for Use in the United States (USAUDIT): a version of the AUDIT (see below) adapted for use in the US.[62]
2. The Alcohol Use Disorders Identification Test (AUDIT) Interview Version: a WHO-developed valid and reliable screening tool for alcohol use disorders, ≥8 indicates "hazardous or harmful" alcohol use.[63]

Self-report and survey-based assessment options

1. The Alcohol Use Disorders Identification Test (AUDIT) Self-Report Version: a WHO-developed valid and reliable screening tool for alcohol use disorders, ≥8 indicates "hazardous or harmful" alcohol use.[63]

Likely Comorbidities

Alcohol use disorder is often comorbid with major depressive disorder, attention-deficit hyperactivity disorder (ADHD), anxiety disorders (generalized anxiety disorder, social anxiety disorder, and panic disorder), posttraumatic stress disorder, and schizophrenia.[64] Those with alcohol use disorder are also at higher risk than the general population for cardiovascular disease, cancer, liver disease, and diabetes.[65]

Opioid Use Disorder

Prevalence

U.S. adult prevalence: approximately 2-3% (past year)[66]
Worldwide adult prevalence: "over 16 million people worldwide"[67]

Diagnostic and Statistical Manual of Mental Disorders (DSM) Criteria

DSM-5[3]

A. A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:
    1. Opioids are often taken in larger amounts or over a longer period than was intended.
    2. There is a persistent desire or unsuccessful efforts to cut down or control opioid use.
    3. A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.
    4. Craving, or a strong desire or urge to use opioids.
    5. Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home.
    6. Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.
    7. Important social, occupational, or recreational activities are given up or reduced because of opioid use.
    8. Recurrent opioid use in situations in which it is physically hazardous.
    9. Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
    10. Tolerance, as defined by either of the following:
        a. A need for markedly increased amounts of opioids to achieve intoxication or desired effect.
        b. A markedly diminished effect with continued use of the same amount of an opioid.
        c. **Note:** This criterion is not considered to be met for those taking opioids solely under appropriate medical supervision.
    11. Withdrawal, as manifested by either of the following:
        a. The characteristic opioid withdrawal syndrome (refer to Criteria A and B of the criteria set for opioid withdrawal).
        b. Opioids (or a closely related substance) are taken to relieve or avoid withdrawal symptoms.
        c. **Note:** This criterion is not considered to be met for those individuals taking opioids solely under appropriate medical supervision.

DSM-IV[4]

Diagnostic criteria for Substance Dependence:

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. tolerance, as defined by either of the following:
    a) a need for markedly increased amounts of the substance to achieve intoxication or desired effect
    b) markedly diminished effect with continued use of the same amount of the substance
2. withdrawal, as manifested by either of the following:
    a) the characteristic withdrawal syndrome for the substance (refer to Criteria A and B of the criteria sets for Withdrawal from the specific substances)
    b) the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms
3. the substance is often taken in larger amounts or over a longer period than was intended
4. there is a persistent desire or unsuccessful efforts to cut down or control substance use
5. a great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects
6. important social, occupational, or recreational activities are given up or reduced because of substance use
7. the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption)

Diagnostic criteria for Substance Abuse

A. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period:
    1. recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household)
    2. recurrent substance use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance use)
    3. recurrent substance-related legal problems (e.g., arrests for sub- stance-related disorderly conduct)
    4. continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance (e.g., arguments with spouse about consequences of intoxication, physical fights)
B. The symptoms have never met the criteria for Substance Dependence for this class of substance.

Major changes between DSM-IV and DSM-5

As noted above, DSM-IV separated substance dependence and substance abuse, which were combined into the single substance use disorder criteria for DSM-5.[5] DSM-5 also includes separate diagnoses for different substance use disorders, including a specific diagnosis for opioid use disorder. DSM-5 also removes the legal troubles criteria and changes the threshold of number of symptoms required for diagnosis.

Disorder Assessment

Interview-based assessment options

1. Opioid Risk Tool (ORT): a validated scale to assess risk for opioid use disorder among primary care patients beginning pain management. ≥4 indicates moderate risk for OUD, ≥8 indicates high risk.[68]
2. The CRAFFT Screening Interview: a validated screening tool for substance abuse and dependence, based on DSM-IV criteria (not specific to opioid use) for adolescents under 21 years of age.[69] A score of ≥2 indicates a positive screen which requires follow up.

Self-report and survey-based assessment options

1. Drug Abuse Screening Test (DAST-10): a validated screening tool available either as self-report or interview which assesses non-alcohol/tobacco substance use.[70] Cutoffs are available for low, moderate, substantial, and severe levels of substance use.
2. The Tobacco, Alcohol, Prescription medications, and other Substance (TAPS) Tool: a validated screening assessment available either as self-report or interview which examines general substance use (not specific to opioid use).[71] A score of ≥1 indicates problematic substance use and ≥2 indicates substance use disorders.

Likely Comorbidities

Psychiatric disorders most commonly comorbid with opioid use disorder include major depressive disorder, anxiety disorders, antisocial personality disorder, attention-deficit hyperactivity disorder (ADHD), posttraumatic stress disorder, and borderline personality disorder.[72] Chronic pain is also often comorbid with opioid use disorder.[73]

Recommended Resources for Further Reading

1. Diagnosis of psychiatric disorders
    a. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders (5th ed.)*; 2013
    b. American Psychiatric Association. *Highlights of Changes from DSM-IV-TR to DSM-5*. 2013. https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/DSM/APA_DSM_Changes_from_DSM-IV-TR_-to_DSM-5.pdf
2. Instruments for assessing psychiatric disorders
    a. American Psychological Association. *Depression Assessment Instruments*. 2023. https://www.apa.org/depression-guideline/assessment
    b. American Psychological Association. *Measurement-based care: Suggested measures*. 2022. https://www.apaservices.org/practice/measurement-based-care/suggested-measures
    c. National Institute on Drug Abuse. *Screening and Assessment Tools Chart*. 2023. https://nida.nih.gov/nidamed-medical-health-professionals/screening-tools-resources/chart-screening-tools
3. Publicly available data with mental health- and substance use-related variables
    a. Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance System* (BRFSS). 2024. https://www.cdc.gov/brfss/index.html
    b. Centers for Disease Control and Prevention. *Youth Risk Behavior Surveillance System (YRBSS)*. 2024. https://www.cdc.gov/yrbs/index.html
    c. Centers for Disease Control and Prevention. *National Health and Nutrition Examination Survey* (NHANES). 2024. https://www.cdc.gov/nchs/nhanes/index.htm
    d. Centers for Disease Control and Prevention. *Web-based Injury Statistics Query and Reporting System*. 2024. https://wisqars.cdc.gov
    e. Healthy Minds Network. *Healthy Minds Study – Student Survey*. 2024. https://healthymindsnetwork.org/hms/
    f. Substance Abuse and Mental Health Services Administration. *National Survey on Drug Use and Health (NSDUH)*. 2024. https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health
    g. For more data sets, see the resource page of the Center's website: https://sites.bu.edu/ctmh/resources/

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