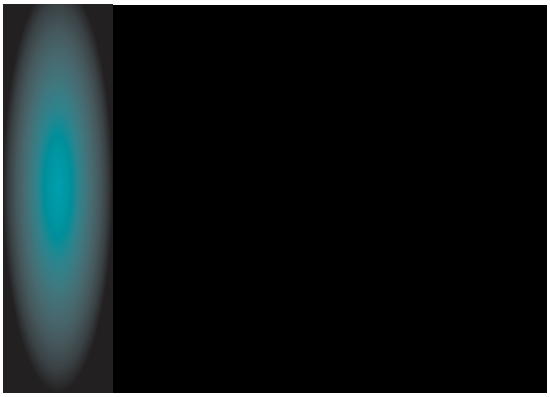
Mental and Behavioral Health

Elizabeth C. Katz, Eugene M. Dunne, Samantha Lookatch, and Joshua S. Camins



CHAPTER OUTLINE

Depression, anxiety, schizophrenia, and substance abuse are prominent among the mental health and behavioral disorders. Affecting more than 450 million people worldwide and associated with substantial morbidity and mortality,[1] these disorders are critical targets for prevention efforts because of their toll on individuals and society.

I. MENTAL HEALTH/BEHAVIORAL DISORDERS AND SUICIDE

A. Definitions

MENTAL HEALTH DISORDER

Mental health disorder is a broad term that refers to a set of emotions, cognitions, and behaviors that cause distress to individuals or others, are abnormal from the perspective of the society or culture, and result in harm to self or others or in functional impairment in one or more domains (i.e., work, school, home).[2] Within the broader category of mental health disorder are *emotional disorders* that cross *Diagnostic and Statistical Manual for Mental Disorders* (DSM-IV-TR) diagnostic categories.[2] The most prevalent of the emotional disorders, and therefore the most costly to individuals and society, are depression and anxiety.[1] Table 21-1 outlines mood (depressive), anxiety, and trauma disorders, the mental health disorders that are the focus of this chapter.

BEHAVIORAL DISORDERS

Behavioral disorders involve substance use or participation in non-drug-related risky behaviors (e.g., gambling, overeating), also known as **behavioral addictions,** to such an extent that they appear *compulsive* ("out of control" of the individual) and pose serious threats to the participant's health and well-being. Behavioral disorders represent extreme cases of typical behaviors (e.g., alcohol dependence; overeating to point of obesity).

Substance use, both licit (e.g., alcohol, tobacco) and illicit (e.g., cocaine, heroin), varies along a continuum[3] (Fig. 21-1). *Misuse* of a substance is often indicative of a risk for more pathological use. *Pathological use* may be characterized by continued substance use despite serious consequences (e.g., HIV infection, incarceration), *tolerance* (need to take more of a substance to experience its customary effects), and withdrawal.[2]

Recent discussion has centered on whether other behaviors, such as overeating, excessive video game or Internet use, and sexual behavior, may be considered behavioral addictions. The following arguments favor the behavioral addiction concept:

- Such behaviors often appear compulsive (outside the individual's control).
- Participation is continued despite experiencing serious negative consequences.
- The same neural circuitry responsible for substance addiction is also involved in excessive pursuit of these behaviors.[4]

Research also suggests that substance and behavioral addictions are highly comorbid.[5] Although strong evidence supports the inclusion of pathological gambling and excessive Internet use within the broader category of addictive disorders, evidence supporting other behavioral addictions (e.g., kleptomania, sexual addiction) is less compelling.[5] However, others consider the evidence in support of the *food addiction* concept, specifically as it relates to compulsive overeating and bulimia,[4] to be compelling.[6] Obesity is discussed in Chapter 19.

Table 21-1 Mood, Anxiety, and Trauma Disorders: Key Conditions and Description*

Category	Defining Conditions	Category Description
Mood (depressive) disorders	Major depressive disorder Dysthymic disorder	Pervasive and persistent feelings of sadness or loss of enjoyment or pleasure Weight loss/gain; decreased energy or agitation; poor self-concept; decreased attention/concentration
Anxiety disorders	Panic disorder with or without agoraphobia Specific phobia Social phobia Obsessive-compulsive disorder Generalized anxiety disorder	Adaptive emotional responses (e.g., fear, anxiety) triggered persistently and inappropriately Characterized by physical symptoms (e.g., heart palpitations; sweating); cognitive avoidance (e.g., distraction techniques or dissociation) and distortions; behavioral avoidance
Trauma disorders	Posttraumatic stress disorder Acute stress disorder	Anxiety disorder resulting from exposure to traumatic event (e.g., rape, war/combat, natural disaster, terrorism) Individual perceives self or other person to be at risk of incurring serious injury or dying. Individual reexperiences event through vivid dreams or memories, with dissociation and emotional numbing.

Modified from American Psychiatric Association: *Diagnostic and statistical manual of mental disorders,* ed 4 text revision), Washington, DC, 2000, APA.
*Descriptions refer to the general category rather than the specific disorders. Each disorder has an associated set of shared and unique criteria. The mood disorders category also includes *bipolar disorder,* which is not addressed in this chapter. The trauma disorders are included in the anxiety disorders category in DSM-IV-TR; however, because their prevention and treatment are often different from other anxiety disorders, they are treated as a separate category in this chapter.

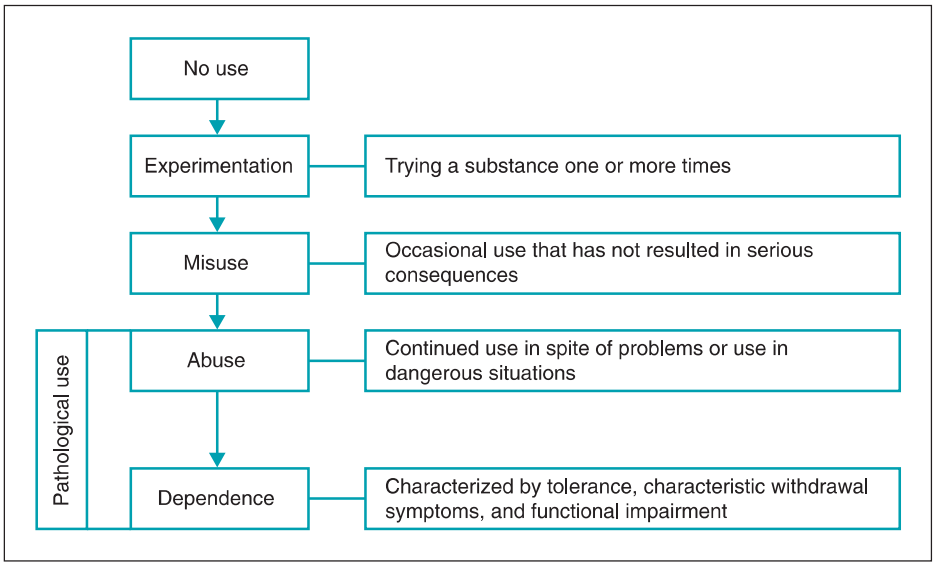


Figure 21-1 Continuum of substance use.

SUICIDE

Suicide is a purposeful act directed toward ending one's life. Whereas *suicide* is intended to refer to successful completion of the act, the term *suicide attempt* is intended to refer to any act of self-harm, including **parasuicidal behavior** such as cutting, regardless of the intent of the behavior or the outcome. **Suicidal ideation** refers to thoughts about killing or harming oneself.[7]

B. Epidemiology

MENTAL HEALTH DISORDERS

Mental health disorders affect a large segment of the U.S. population. Research suggests that about one in five adults (age 18 or older) met criteria for a mental health disorder in the past year.[8] Table 21-2 outlines prevalence estimates for mood (depressive), anxiety, and trauma disorders.

BEHAVIORAL DISORDERS

Figure 21-2 presents rates of licit and illicit substance use. Among licit substances, alcohol is most often used, with 52% of individuals age 12 or older reporting tobacco use in the past year, followed closely by tobacco products, used by 28% of individuals age 12 years and older.[9] While not as prevalent as alcohol and tobacco, illicit substances are used at alarming rates and include marijuana, cocaine, heroin, and amphetamines. Evidence indicates abuse of prescription medications (i.e., use for nonprescribed purposes such as "getting high" or to help study) has been increasing in recent years.[10,11]

Table 21-2 Prevalence Estimates for Depressive, Anxiety, and Trauma Disorders*

Disorders†	Prevalence
Mood (depressive)	11% for any mood disorder, all ages 2.7%-10% for major depressive disorder, all ages 6%-8% for any mood disorder, children and adolescents As many as 30% experience subclinical depressed mood lasting 2 or more weeks
Anxiety	17% for any anxiety disorder, all ages 10% for any anxiety disorder, children and adolescents 27%-70% of children experience anxiety that does not meet DSM-IV criteria for disorder
Trauma	3.6% for posttraumatic stress disorder (PTSD), all ages† 5%-51% meet criteria for PTSD (lifetime) after exposure to trauma; variations in rates depend on severity of trauma and methodologic issues‡

*Rates reflect past year prevalence unless noted otherwise.
†Modified from Dozois DJA, Westra HA: In Dozois DJA, Dobson KS, editors: *The prevention of anxiety and depression: theory, research, and practice,* Washington, DC, 2004, American Psychological Association.
‡From Story TJ, Zucker BG, Craske MG: In Dozois DJA, Dobson KS, editors: *The prevention of anxiety and depression: theory, research, and practice,* Washington, DC, 2004, American Psychological Association.

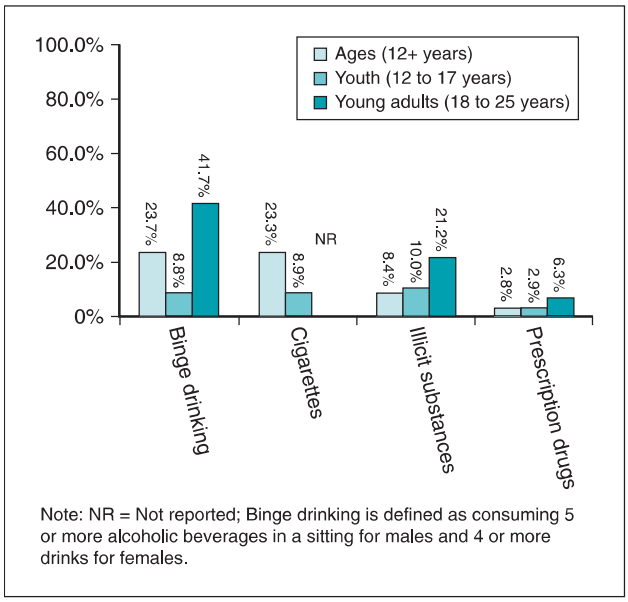


Figure 21-2 Past-month prevalence estimates for substance use, 2009. Binge drinking, cigarette smoking, illicit substances, and prescription drug use in persons age 12 and older, adolescents age 12-17, and young adults age 18-25. (Modified from Substance Abuse and Mental Health Services Administration: Results from the 2009 National Survey on Drug Use and Health, Rockville, Md, 2010, Office of Applied Studies; and National Institute of Alcohol Abuse and Alcoholism: NIAAA council approves definition of binge drinking.)

Among behavioral addictions, pathological gambling is estimated to affect 1% to 2% of the U.S. population. Sexual behavior considered pathological is estimated to affect 5%. In regard to problematic Internet use, whereas 6% of users can be considered addicted, this represents less than 1% of the U.S. population. Eating or food addictions are believed to affect 3%, with women affected more often than men.[11]

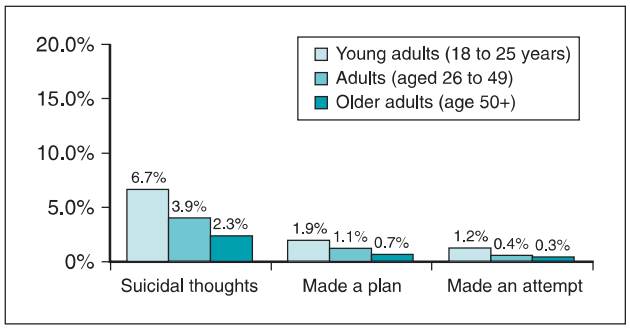


Figure 21-3 Past-year prevalence estimates for suicidal ideation, 2008. Serious suicidal thoughts, making plans for suicide, and suicide attempts in young adults age 18-24, adults age 26-49, and older adults 50 and older. (From Substance Abuse and Mental Health Services Administration: Suicidal thoughts and behaviors among adults: the NSDUH report, Rockville, Md, 2009, Office of Applied Studies. http://www.samhsa.gov/data/2k9/165/Suicide.htm)

CONCURRENT MENTAL HEALTH AND BEHAVIORAL DISORDERS

There is a high degree of comorbidity among mental health disorders and between mental health and behavioral disorders. Specifically, anxiety and depression are present concurrently in about 50% of patients.[12] Among substance-dependent individuals, 60% to 80% of adults and 60% of youth have a comorbid mental health disorder. Moreover, approximately 25% to 30% of depressed and anxious adults meet criteria for a substance use disorder.[13] Behavioral addictions (e.g., gambling, overeating, Internet overuse) are often associated with other behavioral and drug addictions, as well as psychiatric disorders.[11]

SUICIDE

Suicide accounted for more than 32,000 adult deaths in the United States in 2006. Many more adults have serious thoughts about killing themselves than make a suicide plan or attempt suicide. Research also suggests that for every one successful suicide, there are as many as 20 attempts.[1] Among youth, estimates suggest that between 9.4% (ages 12 to 13) and 12.7% (ages 14 to 17) were at serious risk for suicide by virtue of having had serious suicidal ideation or having made a previous attempt. Among those at *high risk,* 37% made a suicide attempt in the past year[14] (Fig. 21-3).

C. Costs

Mental health and behavioral disorders are extremely costly to society (Fig. 21-4). Whereas anxiety and depression costs primarily result from mental health care utilization, the costs associated with substance use disorders include both health care utilization (outpatient treatment; hospitalization) as well as incarceration and interdiction efforts.

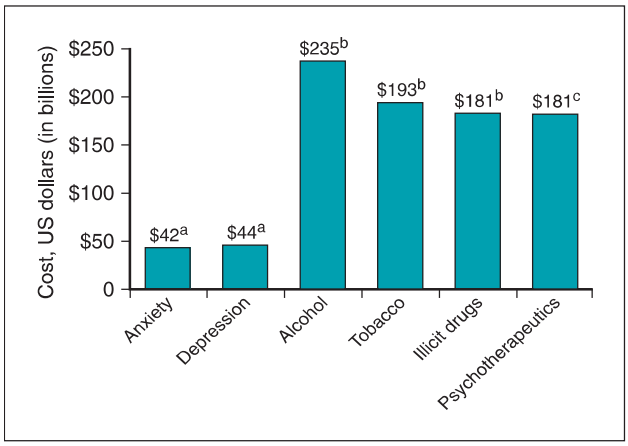


Figure 21-4 Overall economic impact of mental health and behavioral disorders. [a]Annual estimate; [b]year of estimate: 1998 (alcohol), 2007 (tobacco), 2002 (illicit drugs); [c]year of estimate: 2002. (*a* from Dozois D|A, Westra HA: In Dozois D|A, Dobson KS, editors: *The prevention of anxiety and depression: theory, research, and practice*, Washington, DC, 2004, American Psychological Association; *b* from Substance Abuse and Mental Health Services Administration: State estimates of substance use and mental health disorders from the 2008-2009 National Surveys on Drug Use and Health, NSDUH Series H-40, HHS Pub No SMA 11-4641, Rockville, Md, 2011, Office of Applied Studies; *c* from Manchikanti L: *Pain Physician* 9:289–321, 2006.)

MENTAL HEALTH DISORDERS

In addition to economic impacts, mental health disorders are associated with the following[1,12]:

- Educational and occupational impairment
- Difficult social relationships
- Stress and mental health problems in family members caring for an affected person
- Poor quality of life
- Development of, and impaired recovery from, medical conditions
- Substance abuse/dependence
- Death by suicide or other causes

BEHAVIORAL DISORDERS

Substance use disorders cause significant morbidity and mortality both in the United States and worldwide. Alcohol, tobacco, illicit substances, and prescription medications are all responsible for a substantial number of avoidable deaths because of their deleterious health effects. Specifically, excessive use of both licit and illicit substances is associated with cardiovascular disease and many different types of cancer.[1]

By impairing attention, concentration, and judgment, alcohol consumption is believed to be a causal factor in risky sexual practices,[15] increasing the risk of unwanted pregnancies and sexually transmitted infections (STIs), aggressive behavior, and fatal motor vehicle crashes.[1] Smoking during pregnancy is associated with premature birth as well as low birth weight, which increase the risk for attention-deficit hyperactivity disorder (ADHD), conduct problems, and poor school achievement.[9]

Nonprescription use of medications accounts for a substantial number of emergency department admissions and overdoses.[10] Illicit substance use significantly increases the risk of contracting infectious diseases (e.g., HIV, hepatitis B) through injection/intravenous drug use (IDU)[16] or risky sexual practices with infected partners. Drug use during pregnancy is associated with withdrawal symptoms among infants after birth and an increased risk of offspring developing substance use disorders.[1]

SUICIDE

Following a successful suicide, bereavement of family and friends can be lengthy and complicated.[17] In addition to grief, surviving family members and friends feel guilty, confused, depressed, and anxious and may even experience suicidal thoughts or make suicide attempts themselves.[18]

II. RISK AND PROTECTIVE FACTORS

Factors that affect the development of mental and behavioral health disorders fall within several broad categories: biologic, psychological, social, environmental, and cultural.

Whereas some may be directly modifiable through education or treatment (e.g., negative thinking), other risk factors (e.g., temperament) may not. However, some suggest that a *diathesis-stress model* may serve as the most useful framework for understanding the development of mental health disorders[19] and behavioral problems. This model suggests that preexisting biologic and psychological vulnerabilities predispose a vulnerable individual to problematic emotions and behaviors when facing stress that exceeds one's ability to cope. Thus, it is important to be able to recognize these nonmodifiable factors because they may help identify those most in need of prevention and intervention efforts.

A. Biologic Risk Factors

Genetics have been found to account for 30% to 40% of an individual's risk for anxiety and depression[20,21] and 50% to 60% of risk for substance dependence (although heritability estimates for drug dependence are more variable than for alcohol dependence). Research on genetics of addiction suggests that although environmental factors play a more prominent role in the early stages of use (initiation and misuse), genetics is more influential in the progression to pathological use.[22]

Endophenotypes represent inherited traits that are risk factors for disorder and are both present and detectable before the disorder is expressed. Table 21-3 lists traits that represent possible endophenotypes for mental health and behavioral disorders. Other biologic factors associated with dysphoric mood (either anxiety or depression) include the following:

- Hormonal changes (e.g., mood disorder with postpartum onset)[2]
- Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS), associated with a rapid onset of tics, Tourette's syndrome, and obsessive-compulsive disorder in children[23]
- Amount of daylight (e.g., mood disorder with seasonal pattern)[2]
- Disturbances of the circadian rhythm[24]

The pharmacologic properties of drugs explain why they are used. In particular, users often report that they use substances "to feel good, to feel better, to alter consciousness,"[3]

Table 21-3 Inherited Temperaments or Traits Indicative of Risk for Anxiety, Mood (Depressive), and Substance Use Disorders

Disorder	Traits	Impact
Anxiety and depression*	Behavioral inhibition (tendency toward introversion, shyness, and caution in novel situations)	Increase risk
	Difficult temperament (tendency to be fussy, agitated, and irritable)	Increase risk
	Negative affect (tendency toward negative, depressed, irritable, or angry mood)	Increase risk
Alcohol dependence†	Facial flushing	Decrease risk
	Decreased sensitivity to effects of alcohol	Increase risk
Alcohol and drug dependence†	Behavioral disinhibition, sensation seeking, impulsivity, impaired executive functioning (complex cognitive processes such as planning and judgment)	Increase risk
	Psychiatric disorders	Increase risk
Suicide‡	Impulsivity	Increase risk

*Modified from Dozois DJA, Dobson KS, editors: *The prevention of anxiety and depression: theory, research, and practice,* Washington, DC, 2004, American Psychological Association.
†Modified from Miller WR, Carroll KM, editors: *Rethinking substance abuse: what the science shows, and what we should do about it,* New York, 2006, Guilford.
‡Modified from Giegling I, Olgiati P, Hartmann AM, et al: Personality and attempted suicide. Analysis of anger, aggression and impulsivity, *J Psychiatr Res* 43:1262-1271, 2009.

and to do better (e.g., steroids to enhance physical performance; prescription stimulants to enhance academic performance).

The presence of one disorder may be a risk factor for another. Specifically, anxiety often precedes, and thus may be a causal factor in, the development of depression.[25,26] Externalizing disorders during childhood (e.g., conduct disorder, ADHD) are associated with an increased risk of substance use problems that persist into adulthood.[27] Other potential associations between psychiatric and substance use disorders include the following:

- Pathological substance use causes anxiety, depression, and other mental health disorders by increasing stress or impacting sensitive neural systems.
- Anxiety, depression, and other mental health disorders cause pathological substance use because substances help to regulate negative moods.
- Psychiatric and substance use disorders share genetic risk factors (e.g., difficult temperament, negative affectivity) and other risks (e.g., maladaptive responses to stress, lack of adequate coping mechanisms).
- Psychiatric and substance use disorders reciprocally influence one another.[13]

B. Psychological Risk Factors

Individuals' thoughts, beliefs, expectancies, and self-perceptions are shaped through an interaction of inherited temperaments, sensitive neural systems, hormones, and early learning experiences and thereby influence the development of mental health and behavioral disorders. Thus, both depression and anxiety are associated with maladaptive thought patterns, although the content of the maladaptive thoughts associated with anxiety and depression differs.[25,26] Similarly, beliefs about the effects of a substance, known as *outcome expectancies,* influence the age of onset and level of substance use. Positive expectancies (beliefs that drinking will produce positive outcomes) are associated with increased use, but negative expectancies do not appear to deter use.[27] Moreover, one explanation for the increase in nonmedical use of prescribed medications includes the perception that such drugs are safer than illicit substances and pose no serious health risks.[10]

The extent to which an individual believes that others would benefit from the person's death ("perceived burdensomeness") and that the individual's basic needs for affiliation are not being met ("thwarted belongingness") are risk factors for suicidal ideation.[28] Suicide risk increases when suicidal thoughts are combined with an increased acceptance of suicide as a viable option and feelings of hopelessness. One of the best predictors of future suicide attempts is past suicidal behavior.[29]

C. Social Risk Factors

Among vulnerable individuals, exposure to anxious parents[30] or to substance-using peers[27] increases the risk of developing an anxiety or substance use disorder, respectively. Parental depression significantly increases the risk of depression among offspring, perhaps from poor communication, lack of emotional availability and bonding, or family disruption.[31] Direct exposure to a threatening stimulus (e.g., trauma, social evaluation) will also lead to the development of specific phobias and traumatic stress disorders.[30] Direct-to-consumer advertising of psychotherapeutics may play a role in perceptions of these drugs and nonmedical use.[10] Excessive attention and glorification of suicides in the media are believed to increase the risk for "copycat" behavior.[32]

D. Environmental Risk Factors

Stress and adverse early environments, such as those characterized by child abuse and neglect, domestic violence, discrimination, and poverty, are among the most significant risk factors for anxiety and depression,[12] behavioral problems,[1,27] and suicide.[29] Beyond stress, other environmental risk factors for mental and behavioral health disorders are as follows:

- Social isolation
- Inadequate transportation, housing, education, employment, and nutrition[1]
- Poor parenting practices

- Easy access to drugs and alcohol and exposure to drug-using peers[27]
- Increases in the number of prescriptions written for opioid and stimulant medications, as well as availability for purchase online[10]
- Poverty[1]

The following environmental risk factors are specific to suicide:

- Suicide among family or friends
- Inaccessibility of mental health services[1]
- Serious physical illness
- Communities where highly lethal means for committing suicide are readily available[32]

E. Culture/Diversity

Diversity, in terms of gender, race, age, socioeconomic status, and religious affiliation, is a critical factor in determining both risk and resilience for mental health and behavioral disorders. For example, research suggests that anxiety and mood disorders are more prevalent among women,[26] whereas substance use[22] and suicide[32] are more frequent among men. However, although men have an earlier onset of substance use and use more heavily than women, research suggests that rates of cigarette smoking are gender comparable. Moreover, women who do use substances may progress to pathological use more rapidly and have greater difficulty in quitting than men.[33]

Social injustice and *discrimination* are significant risk factors for mental health and behavioral disorders.[1] *Stigma* and discrimination may explain why mental and behavioral disorders are more prevalent among sexual minorities (lesbian, gay, transgendered).[34] *Age* is also a risk factor for the development of these disorders. Some argue that individuals over age 50 are at higher risk than their younger counterparts,[1] but others find that young adults are at greater risk for suicidal ideation and attempts.[35]

Minority status has also been implicated as a risk factor for experiencing traumatic events as well as for developing all mental health and behavioral disorders.[36] Onset of substance use is later among African Americans and Hispanics than among Caucasians.[27] Moreover, racial and ethnic groups experience different levels of substance use disorders, possibly because of genetic and social factors. For example, the increased risk of alcoholism among Native Americans may be caused by an inherited low-level response to alcohol, whereas the relatively low rates of alcoholism among Asians may result from an inherited flushing response.[22] Jewish people may experience lower rates of alcoholism because drinking occurs in the context of family and religious rituals.[27] Ethnic minorities are also at higher risk for committing suicide.[32] However, the relationship between ethnic/racial minority status and mental health/behavioral problems may largely be caused by the effects of poverty and lack of access to adequate mental health care[37] and behavioral health care.[36]

F. Protective Factors

Even among individuals predisposed to develop a mental health or behavioral disorder by virtue of one or more risk factors, the availability of protective factors can help mitigate that risk. Achieving developmental milestones at appropriate times, being physically healthy, and being physically active are associated with good mental health.[1] Possessing at least average cognitive ability is also associated with lower rates of anxiety and depression.[12,21]

Cognitive, social, environmental, and cultural factors that contribute to good mental and behavioral health outcomes include the following:

- Secure attachment during infancy, which contributes to the development of a positive self-image and adequate social skills[20,31]
- Strong attachments to family, school, and community among adolescents
- Social support and positive parenting practices[1,27]
- Adequate coping skills for managing stress
- High self-esteem[1]
- Strong religious beliefs[38]

III. PREVENTION AND HEALTH PROMOTION STRATEGIES

The Institute of Medicine (IOM) proposed a typology for prevention of mental health and behavioral problems based on that used for physical health problems. This typology comprises three categories: universal, selective, and indicated. Similar to primary prevention, **universal prevention** efforts are targeted toward an entire population, regardless of risk level. The other two IOM categories involve secondary prevention, because they are directed toward those at greater risk for mental health and behavioral disorders. These individuals possess risk factors such as anxious temperament or early childhood adversity (i.e., **selective prevention**), or they are experiencing subclinical symptoms that do not meet the criteria for disorder, such as anxious mood without functional impairment (i.e., **indicated prevention**). Selective prevention and indicated prevention are collectively referred to as **targeted prevention**.

Because the IOM classification does not address prevention of relapse or reduction of harm among individuals who are experiencing or have experienced a first episode of disorder, a fourth category, *treatment*, which is most similar to tertiary prevention, is also needed.[25]

A. Theoretical Framework

The **health belief model** provides a framework for understanding how people perceive themselves to be at risk for developing problems and factors associated with decisions to enact disorder prevention and health-promotion behaviors (see Chapter 15). The health belief model was created in the late 1950s in response to the lack of utilization of public health efforts to vaccinate people for tuberculosis. The model includes the following four cognitive dimensions that impact an individual's willingness to modify risky health behaviors.

1. *Perceived susceptibility* is the extent to which individuals recognize that they are at risk for developing an undesirable health outcome.
2. *Perceived severity* involves the extent to which associated consequences are perceived to be grave.

3. *Perceived benefits* of change
4. *Perceived barriers* to change

More recently, the health belief model was modified to include the concept of *perceived self-efficacy* in recognition of its importance in predicting the likelihood of behavior change. Self-efficacy refers to confidence or a belief in one's competence to do what is needed to enact health-enhancing behaviors.[39]

B. Public Policy

Universal prevention efforts include policy changes that are targeted toward an entire population and serve to reduce the incidence of mental health or behavioral disorders. Strategies shown to improve mental health outcomes include the following:

- Improving nutrition and housing
- Improving access to education and health care
- Improving access to work and reducing poverty[1]

Although legal approaches to substance use (e.g., incarceration of drug users; interdiction efforts) may prevent experimentation or initial use of substances, these efforts have been largely ineffective for stopping established use.[3] The following policies have led to decreases in rates of substance use and related problems:

- "Sin taxes" (increasing the cost of alcohol and cigarettes)
- Raising the legal age to purchase and drink alcohol
- Reducing the availability of alcohol by regulating number and open hours of places selling alcohol[1,27]
- Advertising bans
- Banning smoking in public places[1]

In addition to the efforts noted thus far, which would reduce suicide rates by reducing anxiety, depression, and substance use, other suicide prevention efforts might include:

- Reducing the toxicity of gasoline and car exhausts
- Minimizing access to high places such as rooftops and bridges
- Enforcing gun control policies
- Controlling the availability of pesticides and prescription medications[1,32]

Selective or indicated prevention efforts might include improving accessibility, affordability, and perceived helpfulness of mental health or substance abuse treatment, especially for groups with limited access.[3,36,37]

C. Media Campaigns

Universal prevention efforts may include media campaigns that highlight the consequences of substance use. The Legacy Foundation's "Truth" campaign links smoking with serious health consequences and death (http://www.thetruth.com/). Television advertisements are effective for reducing drunk-driving crashes and related trauma.[40] Similarly, countermarketing, or antitobacco advertisements, have been found to increase knowledge and negative beliefs about the use of tobacco.[41] Media campaigns can be similarly effective for reducing illicit substance use.[42]

D. Screening

Screening programs may be used as universal prevention efforts to identify individuals who would benefit from more targeted prevention efforts. Brief screening tools can be used in a variety of settings (e.g., primary care physician offices, schools, emergency rooms) to determine level of risk and type of intervention required. For example, the **psychosocial assessment tool** (PAT) is a 20-item self-administered questionnaire for families of chronically ill children that assesses 10 domains of risk factors. The PAT was found to be a valid tool, with most families requiring universal prevention (consisting of screening and support), many fewer requiring selective prevention (services targeted toward specific risk factor identified), and the fewest requiring indicated prevention (involving referral to behavioral health specialist).[43]

A list of measures is useful for identifying risk of developing *anxiety and depression* (e.g., cognitive biases; anxiety sensitivity), diagnosing anxiety or mood disorders, and assessing general mental health, functional impairment, and quality of life.[44] Among the most widely used risk factors measures are the 21-item Beck depression and Beck anxiety inventories, which provide criteria for determining the severity of symptoms (i.e., mild to profound); individuals scoring in the mild to moderate range could be candidates for selective or indicated prevention efforts whereas those scoring higher would likely need treatment. The *brief psychiatric rating scale* (BPRS) is a validated 24-item diagnostic screening tool assessing five domains of mental health problems: thought disorder, withdrawal, anxiety–depression, hostility-suspicion, and activity. Although its psychometric properties are good, diagnoses must be confirmed with a more thorough assessment.[44]

A number of brief screening tools have also been developed for assessing the presence and extent of substance use problems as well as motivation to quit. The four-item CAGE (cut down, annoyed, guilty, eye-opener) and 24-item Michigan Alcoholism Screening Test (MAST) are effective for identifying problematic levels of alcohol use.[45,46] The Rutgers Alcohol Problem Index (RAPI)[47] is an 18-item measure that assesses drinking-related consequences. A revision of the MAST, the drug abuse screening test (DAST), is a 20-item measure that can be used to identify individuals who are using or at risk for using illicit substances.[48]

Also, the **addiction severity index** (ASI, 5th edition) is a structured interview widely used in both substance abuse treatment clinics and treatment research.[49] The ASI assesses severity of problems in seven domains related to drug and alcohol use: medical, employment, alcohol, drug, legal, family/social, and psychiatric. Advantages include good psychometric properties and guiding treatment planning. Disadvantages of the ASI are that it takes 45 minutes to administer and interviewers must be trained to ensure it is administered properly.

A comprehensive assessment of *smoking* should include measures of motivation, nicotine dependence, past quit attempts, smoking history, other substance use, presence of psychiatric conditions, and treatment preferences.[50] All these factors will affect whether a quit attempt is made and whether that attempt is successful. Nicotine dependence can be assessed with the six-item Fagerstrom Test of Nicotine Dependence and two-item *heaviness of smoking* index. Both measures include a question regarding the amount of time

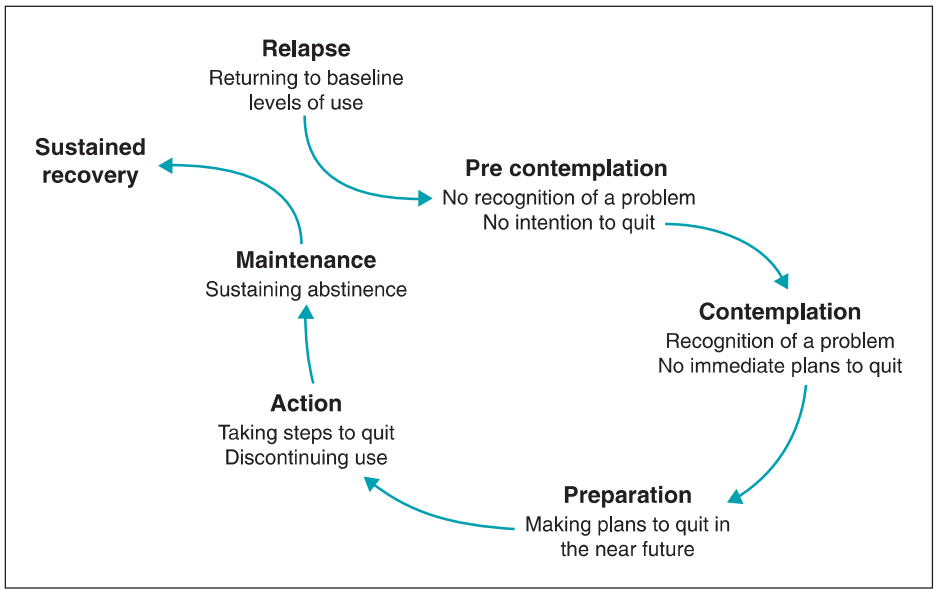


Figure 21-5 Stages of change model. (Modified from Prochaska JO, DiClemente CC: *Psychotherapy* 19:276-288, 1982.)

between waking and smoking the first cigarette, which is strongly associated with level of dependence. Motivation can be assessed using the *contemplation ladder,* which has smokers indicate their readiness to stop smoking on a scale of 0 to 10.[50] The contemplation ladder has its theoretical foundation in the **stages of change model,**[33] which is comprised of five stages and is reinitiated by a relapse (Fig. 21-5).[51] The contemplation ladder may also be useful for assessing motivation to quit among users of alcohol and other drugs.[52] These measures could be used in combination with a brief physician intervention (e.g., five "A" model described later) to enhance motivation to quit as well as to guide decisions about the most appropriate approach to encourage cessation.

While simply asking about thoughts of suicide and the presence of a plan is considered a reasonable strategy for identifying individuals at risk of killing themselves, using the **depressive symptom index** (DSI) **suicidality** subscale is recommended.[53] This four-item measure, with scores from 0 to 12 (higher scores indicate greater risk), assesses presence and frequency of suicidal ideation, presence of a plan, and pervasiveness of the desire to kill oneself. A cutoff score of 3 is recommended to ensure that all high-risk persons are identified while minimizing false positives.

E. Psychosocial Interventions

1. Brief Interventions

Few prevention programs specifically target *anxiety.* However, given the significant number of shared risk factors between anxiety and other mental health and behavioral problems, prevention programs aimed at other disorders will likely have a broad beneficial impact for preventing anxiety.[20] School-based programs are effective for improving coping and social skills and thereby reducing the risk of depression and anxiety.[1] One of the most well-known and widely used universal school-based drug prevention programs delivered by police officers is Project DARE (Drug Abuse Resistance Education). Despite its popularity, meta-analyses show that DARE produces either no effect or possibly harmful effects in terms of youth drug use.[54] Conversely, school-based interventions that teach drug refusal skills and address outcome expectancies for drugs, delivered as either universal or selected prevention programs, can be effective for decreasing substance use.[55]

Universal efforts to prevent *suicide* involve psychoeducational programs targeted to increasing awareness of the symptoms of mental health disorders, their role in suicide, and available resources. In **gatekeeper training,** for example, selected individuals are trained to recognize warning signs of depression and suicide and to intervene with distressed persons. A systematic review found that gatekeeper training improved trainee's knowledge, skills, and attitudes toward intervening and, in specific populations, produced reductions in suicidal ideation and attempts.[56] Research on the efficacy of crisis centers and hotlines, both targeted prevention programs, is inconclusive.[1]

Targeted brief interventions and brief treatments for substance use and mental health disorders include **motivational interviewing** (MI), a brief intervention (1-4 sessions) developed to encourage internal motivation for change. MI has been effective for enhancing treatment retention and reducing substance use and related negative consequences.[57] Recently, MI has been effectively applied to the treatment of mental health disorders, either to increase motivation to engage in treatment or to encourage patients in treatment to take the steps necessary to achieve therapeutic change (e.g., exposure exercises)[58] (see Chapter 15).

In addition to MI, research suggests that advice by a physician may be sufficient to enhance motivation to change behavior and to enter treatment.[59] The U.S. Public Health Service and National Cancer Institute developed the five "A" program, a brief intervention designed to assist physicians

in assessing patient smoking status and encouraging them to quit.[60] The **five "A" model**, based on research on persuasion and the health belief model, involves these five steps:

1. *Ask* all patients about their current smoking status.
2. *Advise* smoking patients to quit. Provide feedback about the role of smoking in causing or exacerbating their current health concerns, as well as personalized information about the benefits of quitting.
3. *Assess* their smoking and related health status.
4. *Assist* patients in their quit attempts. Refer them for psychosocial treatment, or discuss pharmacologic treatment options.
5. *Arrange* a follow-up appointment in the next 3 months.

The five "A" program has been shown to be effective for motivating patients to quit smoking[61] (see Box 15-2).

2. Longer-Term Interventions

Consistent with the finding that insecure attachment is associated with poor psychosocial outcomes, early home-based interventions that help to facilitate maternal responsiveness and expression of positive affect, as well as teach effective parenting skills to reduce child abuse and neglect, are likely to enhance resilience of at-risk children (e.g., impoverished parents, teenage mother).[1] School-based and community-based programs that encourage prosocial behavior, foster expression of positive affect, and teach empathy and cognitive skills for effectively regulating negative emotions as well as problem-solving skills have been useful for improving general mental health and substance use. Programs that address substance use and other risky behaviors teach skills that are also effective for increasing resilience and preventing mental health disorders.[20]

Cognitive-behavioral therapy (CBT) is extensively used for the treatment of anxiety, depression, and substance use disorders. CBT focuses on restructuring maladaptive cognition and teaching effective strategies for coping with stress. In addition, it also identifies thoughts, feelings, and behaviors *(triggers)* that maintain substance use and teaches strategies for coping with triggers (people, places, things, thoughts, feelings). Exposure may be used as part of CBT to foster extinction of the learned association between environmental cues and fear as well as between triggers and drug craving. Research suggests that cognitive and behavioral approaches are effective for preventing a first depressive episode,[1,20] for encouraging drug abstinence during treatment, and for promoting sustained abstinence. Also, patients show continued reductions in substance use for as long as 1 year after CBT ends.[57] For anxiety, CBT is more effective than pharmacotherapy for producing symptom reduction and preventing relapse.[62] Research on the relative effectiveness of psychosocial treatment, pharmacotherapy, and their combination for substance use shows that both are equally effective when used as monotherapy and that their combination offers no advantage.[63]

After exposure to trauma, intervening with individuals exhibiting symptoms of acute stress disorder (ASD) might help to forestall the development of posttraumatic stress disorder (PTSD). However, research on **critical incidents stress debriefing** (CISD), a popular brief intervention for individuals exposed to trauma, has been mixed; some studies find it helpful, and others find it is iatrogenic (i.e., increasing the risk of traumatic stress disorder symptoms). Conversely, cognitive restructuring and exposure therapies effectively reduce symptoms of PTSD and prevent relapse.[30]

Postsuicide intervention programs are based on the same principles as CISD and involve providing survivors with information about resources and with opportunities to share their thoughts and feelings about the suicide. As with CISD, however, such approaches either have no beneficial effects or may be harmful because the suicidal act is glorified, inspiring suicidal thoughts in participants and copycat behavior.[64]

Effective treatments for substance dependence include contingency management and social network and family models. **Contingency management** (CM) models operate on the premise that drug use is highly reinforcing and that motivation for abstinence can be increased when abstinence and participation in non-drug-related activities are reinforced. CM interventions use a variety of reinforcements, including vouchers with monetary value that can be exchanged for goods and services, retail items/gift certificates, and for heroin users, take-home methadone doses. Although CM is most effective for promoting drug abstinence when reinforcement is present (with high rates of relapse once the reinforcement is removed), it does seem to be an effective approach for improving compliance (counseling session attendance; taking medication as prescribed) during treatment, which may translate into longer-term posttreatment benefits.

Social network and family models are rooted in research showing that social support is critical for increasing the likelihood of treatment entry and engagement, abstinence, and sustained recovery. In addition to interventions that focus on involving drug-free family members and significant others in treatment, self-help groups (e.g., Alcoholics Anonymous, Narcotics Anonymous, Rational Recovery) are also effective for improving substance use outcomes.[57]

F. Medical/Pharmacologic Interventions

Pharmacotherapies, particularly selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs), are often used for the treatment of anxiety and depression with the goal of reducing symptoms and improving overall quality of life. However, research suggests that the effectiveness of SSRIs and benzodiazepines for treating anxiety are limited to the period of medication administration, with patients experiencing a relapse of symptoms on cessation.[26] Similarly, pharmacotherapy is less effective than cognitive therapy for preventing relapse after medication discontinuation, although relapse appears to be reduced if (1) the patient experiences full remission of symptoms (partial remission of symptoms increases the risk of relapse after discontinuing medication) and (2) medication is continued for at least 4 to 6 months after remission of symptoms.[65]

However, research does suggest that the increased risk of suicide associated with pharmacologic treatment can be mitigated by the addition of CBT.[66]

Pharmacologic interventions for substance use (Table 21-4) either encourage abstinence initiation or prevent relapse through the following:

- Blocking the effects of drugs and thereby reducing their euphoric effects; such drugs will also instigate the onset of withdrawal symptoms (i.e., antagonists).

Table 21-4 Pharmacotherapies for Substance Use Disorders

Medication	Mechanism of Action	Use
Alcohol		
Benzodiazepines	GABA agonist	Effective for safely detoxifying alcohol-dependent patients
Disulfiram (Antabuse)	Inhibits breakdown of acetylaldehyde; produces headache, facial flushing, and nausea/vomiting	Discourages drinking; only effective if administration is supervised, otherwise patients are noncompliant
Naltrexone	Opiate antagonist	Discourages drinking; more effective than placebo
Acamprosate	Modulates glutamate receptor activity; reduces distress associated with withdrawal	Promotes maintenance of abstinence; more effective than placebo
Ondansetron	Reduces serotonin receptor activity	Discourages drinking; particularly effective for alcoholism with onset before age 25
Nicotine		
Nicotine replacement	Replaces nicotine obtained through smoking; prevents withdrawal	Effective for encouraging smoking abstinence initiation; recommended for short-term use only
Bupropion	Uncertain; presumably blocks the reinforcing effects of nicotine	Effective for promoting smoking abstinence initiation
Nicotine vaccine	Blocks nicotine from entering brain, reducing its euphoric effects	Currently under investigation
Opioids		
Methadone	Full opioid agonist	Effective as a maintenance medication if patients are compliant; patients must attend specialty clinics to obtain medication
Buprenorphine	Partial opioid agonist	Effective as a maintenance medication; more expensive than methadone, but lower risk of overdose death; available by prescription
Naltrexone	Opioid antagonist	Effective for reversing overdose Patient must be fully detoxified to begin medication; poor compliance Under investigation for use in rapid opioid detoxification

Modified from Miller WR, Carroll KM, editors: *Rethinking substance abuse: what the science shows, and what we should do about it,* New York, 2006, Guilford.
GABA, γ-Aminobutyric acid.

- Mimicking the effects of drugs and therefore preventing withdrawal as well as blocking their euphoric effects (agonists).
- Preventing drugs from entering the brain and thereby reducing their euphoric effects (vaccines).[63]

Although considerable research has been done to identify effective pharmacotherapies for stimulants, such as cocaine, none has received U.S. Food and Drug Administration (FDA) approval at present. However, ongoing research is testing the efficacy of a cocaine vaccine. Moreover, there are no FDA-approved pharmacotherapies for marijuana,[63] which is itself now a legal medical therapy in many states.

In addition to interventions that increase abstinence rates and prevent relapse, other medical interventions are designed to reduce harm and prevent overdose or death. For example, programs in which opioid-addicted individuals are prescribed and trained to use naloxone (opioid antagonist) are effective for reversing the effects of opiate overdose in as many as 96% of cases.[67] Needle exchange programs, in which injection drug users can safely exchange used for unused hypodermic needles, are designed to prevent transmission of infectious diseases as well as facilitate entry into treatment.[68] Prevention education and HIV testing, providing condoms, and drug substitution therapy may help reduce the spread of HIV and other transmissible infections.

IV. SUMMARY

Mental health/behavioral disorders and suicide are prevalent and exact significant tolls on individuals, families, and society. Research has begun to identify the shared and unique risk factors as well as protective factors associated with these disorders. Shared risk factors include poor parent-child bonding and inadequate parenting skills, parental mental health problems, poverty, and stress. Unique risk factors are behavioral inhibition for anxiety and depression versus disinhibition for behavioral disorders; anxious role models for anxiety disorders; and substance-using role models for substance use disorders. Shared protective factors include social support and social and emotional competence. Despite advances in the development of effective prevention and intervention approaches, further research is needed to ensure that prevention policies and interventions are grounded in theory, are culturally-informed and relevant, and reflect state-of-the-art (evidence-based) knowledge, to reduce the burden of these disorders while improving quality of life.

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