standard drinks on any day for men, the 12-month prevalence of high-risk drinking in U.S. adults is 17.4% for Native Americans, 15.1% for African Americans, 13.5% for Latinx, 12.3% for non-Latinx Whites, and 7.2% for Asians and Pacific Islanders.

## Development and Course

Intoxication usually occurs as an episode developing over minutes to hours and typically lasting several hours. In the United States, the average age at first intoxication is approximately 15 years, with the highest prevalence at approximately 18–25 years. Frequency and intensity usually decrease with further advancing age. The earlier the onset of regular intoxication, the greater the likelihood the individual will go on to develop alcohol use disorder.

## Risk and Prognostic Factors

**Temperamental.** Episodes of alcohol intoxication increase with personality characteristics of sensation seeking and impulsivity.

**Environmental.** Episodes of alcohol intoxication increase with having heavy-drinking peers, holding beliefs that heavy drinking is an important component of having fun, and using alcohol to cope with stress.

## Culture-Related Diagnostic Issues

The major issues parallel the cultural differences regarding the use of alcohol overall. For example, some college fraternities and sororities encourage alcohol intoxication. This condition is also frequent on certain dates of cultural significance (e.g., New Year's Eve) and, for some subgroups, during specific events (e.g., wakes following funerals). Other subgroups encourage drinking at religious celebrations (e.g., Jewish and Catholic holidays), while still others strongly discourage all drinking or intoxication (e.g., some religious groups, such as Mormons, fundamentalist Christians, and Muslims).

## Sex- and Gender-Related Diagnostic Issues

Historically, in many Western societies, acceptance of drinking and drunkenness is more tolerated for men, but such gender differences may be much less prominent in recent years, especially during adolescence and young adulthood. In general, women are less tolerant of the same amount of alcohol than men.

## Diagnostic Markers

Intoxication is usually established by observing an individual's behavior and smelling alcohol on the breath. The degree of intoxication increases with an individual's blood or breath alcohol level and with the ingestion of other substances, especially those with sedating effects.

## Association With Suicidal Thoughts or Behavior

A collaborative, international study in emergency departments in 17 countries found that acute alcohol use, independent of chronic use, increases the risk of suicide attempt, with each drink raising the risk by 30%. For more information, see "Association With Suicidal Thoughts or Behavior" in the Alcohol Use Disorder section.

## Functional Consequences of Alcohol Intoxication

Alcohol intoxication contributed to the more than 95,000 deaths and 2.8 million years of potential life lost each year in the United States from 2011 through 2015, shortening the

lives of those who died by an average of 30 years. In addition, intoxication with this drug contributes to huge costs associated with drunk driving and lost time from school or work, as well as interpersonal arguments and physical fights.

## Differential Diagnosis

**Other medical conditions.** Several medical (e.g., diabetic acidosis) and neurological conditions (e.g., cerebellar ataxia, multiple sclerosis) can temporarily resemble alcohol intoxication.

**Alcohol-induced mental disorders.** Alcohol intoxication is distinguished from alcohol-induced mental disorders (e.g., alcohol-induced depressive disorder, with onset during intoxication) because the symptoms (e.g., depressed mood) in these latter disorders are in excess of those usually associated with alcohol intoxication, predominate in the clinical presentation, and are severe enough to warrant clinical attention.

**Sedative, hypnotic, or anxiolytic intoxication.** Intoxication with sedative, hypnotic, or anxiolytic drugs or with other sedating substances (e.g., antihistamines, anticholinergic drugs) can be mistaken for alcohol intoxication. The differential requires observing alcohol on the breath, measuring blood or breath alcohol levels, ordering a medical workup, and gathering a good history. The signs and symptoms of sedative-hypnotic intoxication are very similar to those observed with alcohol and include similar problematic behavioral or psychological changes. These changes are accompanied by evidence of impaired functioning and judgment—which, if intense, can result in a life-threatening coma—and levels of incoordination that can interfere with driving abilities and with performing usual activities. However, there is no smell as there is with alcohol, but there is likely to be evidence of misuse of the depressant drug in the blood or urine toxicology analyses.

## Comorbidity

Alcohol intoxication may occur comorbidly with other substance intoxication, especially in individuals with conduct disorder or antisocial personality disorder. Given the typical overlap of alcohol intoxication with alcohol use disorder, see "Comorbidity" under Alcohol Use Disorder for more details about co-occurring conditions that are likely to be encountered.

# Alcohol Withdrawal

## Diagnostic Criteria

A. Cessation of (or reduction in) alcohol use that has been heavy and prolonged.
B. Two (or more) of the following, developing within several hours to a few days after the cessation of (or reduction in) alcohol use described in Criterion A:
   1. Autonomic hyperactivity (e.g., sweating or pulse rate greater than 100 bpm).
   2. Increased hand tremor.
   3. Insomnia.
   4. Nausea or vomiting.
   5. Transient visual, tactile, or auditory hallucinations or illusions.
   6. Psychomotor agitation.
   7. Anxiety.
   8. Generalized tonic-clonic seizures.
C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.

*Specify* if:

**With perceptual disturbances:** This specifier applies in the rare instance when hallucinations (usually visual or tactile) occur with intact reality testing, or auditory, visual, or tactile illusions occur in the absence of a delirium.

**Coding note:** The ICD-10-CM code depends on whether or not there is a comorbid alcohol use disorder and whether or not there are perceptual disturbances.

**For alcohol withdrawal, without perceptual disturbances:** If a mild alcohol use disorder is comorbid, the ICD-10-CM code is **F10.130**, and if a moderate or severe alcohol use disorder is comorbid, the ICD-10-CM code is **F10.230**. If there is no comorbid alcohol use disorder, then the ICD-10-CM code is **F10.930**.

**For alcohol withdrawal, with perceptual disturbances:** If a mild alcohol use disorder is comorbid, the ICD-10-CM code is **F10.132**, and if a moderate or severe alcohol use disorder is comorbid, the ICD-10-CM code is **F10.232**. If there is no comorbid alcohol use disorder, then the ICD-10-CM code is **F10.932**.

## Specifiers

When hallucinations occur in the absence of delirium (i.e., in a clear sensorium), a diagnosis of substance/medication-induced psychotic disorder should be considered.

## Diagnostic Features

The essential feature of alcohol withdrawal is the presence of a characteristic withdrawal syndrome that develops within several hours to a few days after the cessation of (or reduction in) heavy and prolonged alcohol use (Criteria A and B). The withdrawal syndrome includes two or more of the symptoms reflecting autonomic hyperactivity and anxiety listed in Criterion B, along with gastrointestinal symptoms.

Withdrawal symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion C). The symptoms must not be attributable to another medical condition and are not better explained by another mental disorder (e.g., generalized anxiety disorder), including intoxication or withdrawal from another substance (e.g., sedative, hypnotic, or anxiolytic withdrawal) (Criterion D).

Symptoms can be relieved by administering alcohol or benzodiazepines (e.g., diazepam). The withdrawal symptoms typically begin when blood concentrations of alcohol decline sharply (i.e., within 4–12 hours) after alcohol use has been stopped or reduced. Reflecting the relatively fast metabolism of alcohol, symptoms of alcohol withdrawal usually peak in intensity during the second day of abstinence and are likely to improve markedly by the fourth or fifth day. Following acute withdrawal, however, symptoms of anxiety, insomnia, and autonomic dysfunction may persist for up to 3–6 months at lower levels of intensity.

Fewer than 10% of individuals who develop alcohol withdrawal will ever develop dramatic symptoms (e.g., severe autonomic hyperactivity, tremors, alcohol withdrawal delirium). Tonic-clonic seizures occur in fewer than 3% of individuals.

## Associated Features

Although confusion and changes in consciousness are not core criteria for alcohol withdrawal, alcohol withdrawal delirium (see "Delirium" in the chapter "Neurocognitive Disorders") may occur in the context of withdrawal. As is true for any agitated, confused state, regardless of the cause, in addition to a disturbance of consciousness and cognition, withdrawal delirium can include visual, tactile, or (rarely) auditory hallucinations (delir-

ium tremens). When alcohol withdrawal delirium develops, it is likely that a clinically relevant medical condition may be present (e.g., liver failure, pneumonia, gastrointestinal bleeding, sequelae of head trauma, hypoglycemia, an electrolyte imbalance, postoperative status).

## Prevalence

It is estimated that approximately 50% of middle-class, highly functional individuals with alcohol use disorder in the United States have ever experienced a full alcohol withdrawal syndrome. Among individuals with alcohol use disorder who are hospitalized or homeless, the rate of alcohol withdrawal may be greater than 80%. Less than 10% of individuals in withdrawal ever demonstrate alcohol withdrawal delirium or withdrawal seizures. The prevalence of alcohol withdrawal symptoms does not seem to vary across U.S. ethnoracial groups.

## Development and Course

Acute alcohol withdrawal occurs as an episode usually lasting 4–5 days and only after extended periods of heavy drinking. Withdrawal is relatively rare in individuals younger than 30 years, and the risk and severity increase with increasing age.

## Risk and Prognostic Factors

Alcohol withdrawal is more likely to occur with heavier alcohol intake, and that might be most often observed in individuals with conduct disorder and antisocial personality disorder. Withdrawal states are also more severe in individuals who are also dependent on other depressant drugs (sedative-hypnotics) and individuals who have had more alcohol withdrawal experiences in the past. Predictors of severe alcohol withdrawal include alcohol withdrawal delirium, prior histories of severe withdrawal syndromes, low blood potassium levels, decreased platelet counts, and systolic hypertension.

**Environmental.** The probability of developing alcohol withdrawal increases with the quantity and frequency of alcohol consumption. Most individuals with this condition are drinking daily, consuming large amounts (approximately more than eight drinks per day) for multiple days. However, there are large inter-individual differences, with enhanced risks for individuals with concurrent medical conditions, those with family histories of alcohol withdrawal (i.e., a genetic component), those with prior withdrawals, and individuals who consume sedative, hypnotic, or anxiolytic drugs.

## Diagnostic Markers

Autonomic hyperactivity in the context of moderately high but falling blood alcohol levels and a history of prolonged, heavy drinking indicate a likelihood of alcohol withdrawal.

## Functional Consequences of Alcohol Withdrawal

Symptoms of withdrawal may serve to perpetuate drinking behaviors and contribute to relapse, resulting in persistently impaired social and occupational functioning. Symptoms requiring medically supervised detoxification result in hospital utilization and loss of work productivity. Overall, the presence of withdrawal is associated with greater functional impairment and poor prognosis among individuals with alcohol use disorder.

## Differential Diagnosis

**Other medical conditions.** The symptoms of alcohol withdrawal can also be mimicked by some medical conditions (e.g., hypoglycemia and diabetic ketoacidosis). Essential tremor,

a disorder that frequently runs in families, may erroneously suggest the tremulousness associated with alcohol withdrawal.

**Alcohol-induced mental disorders.** Alcohol withdrawal is distinguished from alcohol-induced mental disorders (e.g., alcohol-induced anxiety disorder, with onset during withdrawal) because the symptoms (e.g., anxiety) in these latter disorders are in excess of those usually associated with alcohol withdrawal, predominate in the clinical presentation, and are severe enough to warrant clinical attention.

**Sedative, hypnotic, or anxiolytic withdrawal.** Sedative, hypnotic, or anxiolytic withdrawal produces a syndrome very similar to that of alcohol withdrawal.

### Comorbidity

Given the typical overlap of alcohol withdrawal with alcohol use disorder, see "Comorbidity" under Alcohol Use Disorder for more details about co-occurring conditions that are likely to be encountered.

## Alcohol-Induced Mental Disorders

The following alcohol-induced mental disorders are described in other chapters of the manual with disorders with which they share phenomenology (see the substance/medication-induced mental disorders in these chapters): alcohol-induced psychotic disorder ("Schizophrenia Spectrum and Other Psychotic Disorders"); alcohol-induced bipolar and related disorder ("Bipolar and Related Disorders"); alcohol-induced depressive disorder ("Depressive Disorders"); alcohol-induced anxiety disorder ("Anxiety Disorders"); alcohol-induced sleep disorder ("Sleep-Wake Disorders"); alcohol-induced sexual dysfunction ("Sexual Dysfunctions"); and alcohol-induced major or mild neurocognitive disorder ("Neurocognitive Disorders"). For alcohol intoxication delirium and alcohol withdrawal delirium, see the criteria and discussion of delirium in the chapter "Neurocognitive Disorders." These alcohol-induced mental disorders are diagnosed instead of alcohol intoxication or alcohol withdrawal only when the symptoms are sufficiently severe to warrant independent clinical attention.

### Diagnostic and Associated Features

The symptom profiles for an alcohol-induced condition resemble the corresponding independent mental disorders as described elsewhere in this manual. Moreover, while alcohol-induced conditions can have the same severe consequences as independent mental disorders (e.g., suicide attempts), they are likely to improve without formal treatment in a matter of days to weeks after cessation of severe intoxication and/or withdrawal.

Each alcohol-induced mental disorder is listed in the relevant diagnostic section and therefore only a brief description is offered here. These alcohol-induced mental disorders must have developed in the context of severe alcohol intoxication and/or alcohol withdrawal.

Given that the presentation of an alcohol-induced mental disorder symptomatically resembles the presentations of independent mental disorders from the same diagnostic class, they must be differentiated based on the temporal relationship between the alcohol use and the psychiatric symptoms. Individuals with alcohol-induced mental disorders are likely to also demonstrate the associated features seen with an alcohol use disorder, as listed in that subsection.

There must be evidence that the disorder being observed is not likely to be better explained by an independent mental disorder. The latter is likely to occur if the mental dis-

order was present before the severe intoxication or withdrawal, or continued for more than 1 month after the cessation of severe intoxication or withdrawal. When symptoms are observed only during a delirium, they should be considered part of the delirium and not diagnosed separately, as many symptoms (including disturbances in mood, anxiety, and reality testing) are commonly seen during agitated, confused states. The alcohol-induced mental disorder must be clinically relevant, causing significant distress or significant functional impairment. Finally, there are indications that the intake of substances of abuse in the context of a preexisting mental disorder are likely to result in an intensification of the preexisting independent syndrome.

Rates of alcohol-induced mental disorders vary somewhat by diagnostic category. For example, the lifetime risk for major depressive episodes in individuals with alcohol use disorder is approximately 40%, but only about one-third to one-half of these represent independent major depressive syndromes observed outside the context of intoxication. Similar rates of alcohol-induced sleep and anxiety disorders are likely, but alcohol-induced psychotic episodes are estimated to be seen in less than 5% of individuals with alcohol use disorder.

## Development and Course

Once present, the symptoms of an alcohol-induced mental disorder are likely to remain clinically relevant as long as the individual continues to experience severe intoxication or withdrawal. While the symptoms may be identical to those of independent mental disorders (e.g., psychoses, major depressive disorder), and while they can have the same severe consequences (e.g., suicide attempts), all alcohol-induced mental disorders other than alcohol-induced neurocognitive disorder, amnestic confabulatory type (alcohol-induced persisting amnestic disorder), regardless of the severity of the symptoms, are likely to improve relatively quickly and unlikely to remain clinically relevant for more than 1 month after cessation of severe intoxication and/or withdrawal.

The alcohol-induced mental disorders are an important part of the differential diagnoses for the independent mental conditions. Independent schizophrenia, major depressive disorder, bipolar disorder, and anxiety disorders, such as panic disorder, are likely to be associated with much longer-lasting periods of symptoms and often require longer-term medications to optimize the probability of improvement or recovery. The alcohol-induced mental disorders, on the other hand, are likely to be much shorter in duration and disappear within several days to 1 month after cessation of severe intoxication and/or withdrawal, even without psychotropic medications.

The importance of recognizing an alcohol-induced mental disorder is similar to the relevance of identifying the possible role of some endocrine conditions and medication reactions before diagnosing an independent mental disorder. In light of the high prevalence of alcohol use disorders worldwide, it is important that these alcohol-induced diagnoses be considered before independent mental disorders are diagnosed.

# Unspecified Alcohol-Related Disorder

**F10.99**

This category applies to presentations in which symptoms characteristic of an alcohol-related disorder that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for any specific alcohol-related disorder or any of the disorders in the substance-related and addictive disorders diagnostic class.

# Caffeine-Related Disorders

Caffeine Intoxication
Caffeine Withdrawal
Caffeine-Induced Mental Disorders
Unspecified Caffeine-Related Disorder

## Caffeine Intoxication

### Diagnostic Criteria F15.920

A. Recent consumption of caffeine (typically a high dose well in excess of 250 mg).
B. Five (or more) of the following signs or symptoms developing during, or shortly after, caffeine use:
   1. Restlessness.
   2. Nervousness.
   3. Excitement.
   4. Insomnia.
   5. Flushed face.
   6. Diuresis.
   7. Gastrointestinal disturbance.
   8. Muscle twitching.
   9. Rambling flow of thought and speech.
   10. Tachycardia or cardiac arrhythmia.
   11. Periods of inexhaustibility.
   12. Psychomotor agitation.
C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication with another substance.

### Diagnostic Features

Caffeine can be consumed from a number of different sources, including coffee, tea, caffeinated soda, "energy" drinks, over-the-counter analgesics and cold remedies, weight-loss aids, and chocolate. Caffeine is also increasingly being used as an additive to vitamins and to food products. More than 85% of children and adults in the United States consume caffeine. Some caffeine users display symptoms consistent with problematic use, including tolerance and withdrawal (see "Caffeine Withdrawal" later in this chapter); the data are not available at this time to determine the clinical significance of a caffeine use disorder and its prevalence. In contrast, there is evidence that caffeine withdrawal and caffeine intoxication are clinically significant and sufficiently prevalent.

The essential feature of caffeine intoxication is recent consumption of caffeine and five or more signs or symptoms that develop during or shortly after caffeine use (Criteria A and B). Symptoms include restlessness, nervousness, excitement, insomnia, flushed face, diuresis, and gastrointestinal complaints, which can occur with low doses (e.g., 200 mg) in

vulnerable individuals such as children, the elderly, or individuals who have not been exposed to caffeine previously. Symptoms that generally appear at levels of more than 1 g/day include muscle twitching, rambling flow of thought and speech, tachycardia or cardiac arrhythmia, periods of inexhaustibility, and psychomotor agitation. Caffeine intoxication may not occur despite high caffeine intake because of the development of tolerance. The signs or symptoms must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion C). The signs or symptoms must not be attributable to another medical condition and are not better explained by another mental disorder (e.g., an anxiety disorder) or intoxication with another substance (Criterion D).

## Associated Features

Mild sensory disturbances (e.g., ringing in the ears and flashes of light) may occur with high doses of caffeine. Although large doses of caffeine can increase heart rate, typical dietary doses can slow heart rate. Whether excess caffeine intake can cause headaches is unclear. On physical examination, agitation, restlessness, sweating, tachycardia, flushed face, and increased bowel motility may be seen. Caffeine blood levels may provide important information for diagnosis, particularly when the individual is a poor historian, although these levels are not diagnostic by themselves in view of the individual variation in response to caffeine.

## Prevalence

The prevalence of caffeine intoxication in the general population is unclear. In the United States, approximately 7% of individuals in the population may experience five or more symptoms along with functional impairment consistent with a diagnosis of caffeine intoxication.

Consumption of caffeinated energy drinks, often together with alcohol, leading to caffeine intoxication, has increased among adolescents and young adults in high-income countries, resulting in the doubling of U.S. emergency department visits related to caffeinated energy drinks between 2007 and 2011.

## Development and Course

Consistent with a half-life of caffeine of approximately 4–6 hours, caffeine intoxication symptoms usually remit within the first day or so and do not have any known long-lasting consequences. However, individuals who consume very high doses of caffeine (i.e., 5–10 g) may require immediate medical attention, as such doses can be lethal.

With advancing age, individuals are likely to demonstrate increasingly intense reactions to caffeine, with greater complaints of interference with sleep or feelings of hyperarousal. Caffeine intoxication among young individuals after consumption of highly caffeinated products, including energy drinks, has been observed. Children and adolescents may be at increased risk for caffeine intoxication because of low body weight, lack of tolerance, and lack of knowledge about the pharmacological effects of caffeine.

## Risk and Prognostic Factors

**Environmental.** Caffeine intoxication is often seen among individuals who use caffeine less frequently or in those who have recently increased their caffeine intake by a substantial amount. Furthermore, oral contraceptives significantly decrease the elimination of caffeine and consequently may increase the risk of intoxication.

**Genetic and physiological.** Genetic factors may affect risk of caffeine intoxication.

## Functional Consequences of Caffeine Intoxication

Impairment from caffeine intoxication may have serious consequences, including dysfunction at work or school, social indiscretions, or failure to fulfill role obligations. Moreover, extremely high doses of caffeine can be fatal. In some cases, caffeine intoxication may precipitate a caffeine-induced disorder.

## Differential Diagnosis

**Independent mental disorders.** Caffeine intoxication may be characterized by symptoms (e.g., panic attacks) that resemble independent mental disorders. To meet criteria for caffeine intoxication, the symptoms must not be associated with another medical condition or another mental disorder, such as an anxiety disorder, that could better explain them. Manic episodes; panic disorder; generalized anxiety disorder; amphetamine intoxication; sedative, hypnotic, or anxiolytic withdrawal or tobacco withdrawal; sleep disorders; and medication-induced side effects (e.g., akathisia) can cause a clinical picture that is similar to that of caffeine intoxication.

**Caffeine-induced mental disorders.** The temporal relationship of the symptoms to increased caffeine use or to abstinence from caffeine helps to establish the diagnosis. Caffeine intoxication is differentiated from caffeine-induced anxiety disorder, with onset during intoxication (see "Substance/Medication-Induced Anxiety Disorder" in the chapter "Anxiety Disorders"), and caffeine-induced sleep disorder, with onset during intoxication (see "Substance/Medication-Induced Sleep Disorder" in the chapter "Sleep-Wake Disorders"), because the symptoms (e.g., anxiety and insomnia, respectively) in these latter disorders are in excess of those usually associated with caffeine intoxication, predominate in the clinical presentation, and are severe enough to warrant independent clinical attention.

## Comorbidity

Typical dietary doses of caffeine have not been consistently associated with medical problems. However, heavy use (e.g., >400 mg) can cause or exacerbate anxiety and somatic symptoms and gastrointestinal distress. With acute, extremely high doses of caffeine, grand mal seizures and respiratory failure may result in death. Excessive caffeine use is associated with depressive disorders, bipolar disorders, eating disorders, psychotic disorders, sleep disorders, and substance-related disorders, whereas individuals with anxiety disorders are more likely to avoid caffeine.

# Caffeine Withdrawal

### Diagnostic Criteria F15.93

A. Prolonged daily use of caffeine.
B. Abrupt cessation of or reduction in caffeine use, followed within 24 hours by three (or more) of the following signs or symptoms:
   1. Headache.
   2. Marked fatigue or drowsiness.
   3. Dysphoric mood, depressed mood, or irritability.
   4. Difficulty concentrating.
   5. Flu-like symptoms (nausea, vomiting, or muscle pain/stiffness).

C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The signs or symptoms are not associated with the physiological effects of another medical condition (e.g., migraine, viral illness) and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.

## Diagnostic Features

The essential feature of caffeine withdrawal is the presence of a characteristic withdrawal syndrome that develops after the abrupt cessation of (or substantial reduction in) prolonged daily caffeine ingestion (Criterion B). Because individuals may be unaware of the wide array of sources of caffeine beyond coffee, colas, and energy drinks (e.g., over-the-counter analgesics and cold remedies, weight loss aids, chocolate), they may not connect ingestion of these substances with symptoms of caffeine withdrawal. The caffeine withdrawal syndrome is indicated by three or more of the following (Criterion B): headache; marked fatigue or drowsiness; dysphoric mood, depressed mood, or irritability; difficulty concentrating; and flu-like symptoms (nausea, vomiting, or muscle pain/stiffness). The withdrawal syndrome causes clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion C). The symptoms must not be associated with the physiological effects of another medical condition and are not better explained by another mental disorder (Criterion D).

Headache is the hallmark feature of caffeine withdrawal and may be diffuse, gradual in development, throbbing, severe, and sensitive to movement. However, other symptoms of caffeine withdrawal can occur in the absence of headache. Caffeine is the most widely used behaviorally active drug in the world and is present in many different types of beverages (e.g., coffee, tea, mate, soft drinks, energy drinks), foods, energy aids, medications, and dietary supplements. Because caffeine ingestion is often integrated into social customs and daily rituals (e.g., coffee break, tea time), some caffeine consumers may be unaware of their physical dependence on caffeine. Thus, caffeine withdrawal symptoms could be unexpected and misattributed to other causes (e.g., the flu, migraine). Furthermore, caffeine withdrawal symptoms may occur when individuals are required to abstain from foods and beverages prior to medical procedures or when a usual caffeine dose is missed because of a change in routine (e.g., during travel, weekends).

The probability and severity of caffeine withdrawal generally increase as a function of usual daily caffeine dose. However, there is large variability among individuals and within individuals across different episodes in the incidence, severity, and time course of withdrawal symptoms. Caffeine withdrawal symptoms may occur after abrupt cessation of relatively low chronic daily doses of caffeine (i.e., 100 mg).

## Associated Features

Caffeine abstinence has been shown to be associated with impaired behavioral and cognitive performance (e.g., sustained attention), as well as with increased total sleep time, sleep efficiency, and slow-wave sleep. Electroencephalographic studies have shown that caffeine withdrawal symptoms are significantly associated with increases in theta power and decreases in beta-2 power. Decreased motivation to work and decreased sociability have also been reported during caffeine withdrawal. Increased analgesic use during caffeine withdrawal has been documented.

## Prevalence

More than 85% of adults and children in the United States regularly consume caffeine, with adult caffeine consumers ingesting about 280 mg/day on average. The incidence and prevalence of the caffeine withdrawal syndrome in the general population are unclear. In the United States, headache may occur in approximately 50% of cases of caffeine abstinence.