

6

INJURY AND INJURY PREVENTION

Learning Objectives

- 6.1 Describe different types and consequences of injuries
- 6.2 Compare the risk of injury across the lifespan
- 6.3 Summarize the causes of and risk factors for unintentional injuries
- 6.4 Summarize the causes of and risk factors for intentional injuries
- 6.5 Describe strategies for preventing injuries

What You'll Learn

- 6.1 How concussions can lead to lasting consequences
- 6.2 Why conscientious people may be riskier drivers
- 6.3 Why publicizing mass killings can have deadly consequences
- 6.4 Why paid parental leave reduces child abuse
- 6.5 How texting bans save lives

Preview

One of the major goals of health psychology is to prevent the development of health problems, which is a much easier and cheaper way of increasing life expectancy and life quality than treating established medical problems. Preventing injuries—which cause over 26 million visits to an emergency room each year in the United States—can therefore have a substantial impact on both the quality and length of people's lives (Centers for Disease Control and Prevention, 2016b). In turn, one of the goals of Healthy People 2020 is to prevent unintentional injuries and violence and reduce their consequences. In this chapter, you'll learn about different types of injuries and their causes, their frequency across the lifespan, and strategies for preventing injuries.

Outline

Understanding Injury

- Types of Injury
- Consequences of Injuries

Risk of Injury Across the Lifespan

- Infancy and Childhood
- Adolescence and Young Adulthood

- **Focus on Development: The Hazards of Early Sport Specialization**

- Adulthood and Older Adulthood

Understanding Unintentional Injury

- Common Causes of Unintentional Injury
- Risk Factors for Unintentional Injury

- **Focus on Neuroscience: Why Mom's Presence Improves Teen Driving**

Understanding Intentional Injury

- Common Causes of Intentional Injury

- **Focus on Diversity: The Sad Reality of Homicide Deaths**

- Risk Factors for Intentional Injury

- **Test Yourself: Are You at Risk of Harming Yourself?**

Strategies for Preventing Injuries

- Providing Education
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- Changing Communities

- **Research in Action: Why Later School Start Times Can Save Lives**

Summary

UNDERSTANDING INJURY

LO 6.1

Describe different types and consequences of injuries

One of the challenges of understanding the substantial impact of injuries is that we often misunderstand how behavioral choices can cause various types of injuries. This section will examine different types of injuries as well as their consequences.

Types of Injury

Although injuries in general cause numerous fatalities and continuing problems, different types of injuries are caused by different factors. Specifically, psychologists divide injuries into two distinct types: unintentional injuries and intentional injuries.

Unintentional injuries are often described as “accidents” because the person who experienced the injury did not mean for it to happen. However, the leading cause of death in every age group between age 1 and 44 is unintentional injury (Centers for Disease Control and Prevention, 2016e). Many unintentional injuries are caused by car accidents, fires, drowning, falls, and poisoning. This type of injury could include someone developing a sprained neck following a car crash, becoming paralyzed after falling from a balcony, or dying from an accidental drug overdose.

Although unintentional injuries are often called “accidents,” many of these injuries could be prevented (as you’ll learn later in the chapter). For example, in the United States about 90 people a day die from car accidents (Centers for Disease Control and Prevention, 2016f). Because many of these accidents—or at least the deaths caused by them—could be prevented through behavioral choices, such as wearing a seat belt, obeying the speed limit, and refusing to drive while intoxicated, this is a compelling example of the role that individuals’ behavior plays in influencing physical health.

Other types of injuries are described as **intentional injuries**, meaning the person who caused the injury meant for it to happen. Intentional injuries are caused by violent behavior. This type of injury includes self-directed behavior, such as suicide and nonsuicidal self-injury, in which a person deliberately attempts to harm himself or herself. Physical assaults and homicides, in which a person deliberately injures one or more people, are also considered intentional injuries.

Consequences of Injuries

Nearly 200,000 Americans die from injuries each year, and for people ages 1 to 44, injuries are the leading cause of death (Heron, 2016). In fact, in the first half of life, more Americans die from injuries—such as motor vehicle crashes, falls, or homicides—than from any other cause, including cancer, HIV, or heart disease.

Many additional people experience nonfatal injuries. The leading causes of nonfatal injuries are falling, being struck by or against someone or something (such as walking into a wall or colliding with another player during a game), and overexertion (such as carrying a too heavy box or performing a repetitive movement) (Centers for Disease Control and Prevention, 2017v). Over 80 million Americans each year seek medical treatment at a doctor’s office or hospital for an injury, and 2.5 million people are hospitalized due to injuries. In some cases, nonfatal injuries may lead to lasting problems that lead to lasting disability, such as in the case of spinal cord and brain injuries.

You’ve undoubtedly heard about the growing concern about the lasting effects of head injuries experienced by athletes. Approximately 20% of high school athletes experience a concussion at some point, which is probably a low estimate since athletes may fail to report concussion symptoms (Kroshus, Garnett, Hawrilenko, Baugh, & Calzo, 2015). Side effects

What You’ll Learn 6.1

of concussions include headaches, dizziness, confusion, tiredness, and irritability, as well as problems with memory (Bergman et al., 2013). Moreover, head injuries can cause lasting deficits in cognitive abilities, including problems with processing information and performing executive functions (meaning the ability to initiate actions, monitor and change behavior, and plan future behavior; Crawford, Knight, & Alsop, 2007; Howell, Osternig, Van Donkelaar, Mayr, & Chou, 2013; McAllister et al., 2012). Any type of repetitive head contact, such as that sustained during tackling in football or hockey or headers in soccer, can cause brain damage, even if the contact does not cause a concussion or result at the time in clear signs of injury.

People who suffer multiple concussions may experience severe neurological damage, including chronic traumatic encephalopathy (CTE), which is linked with dementia and even suicide. One recent study published in the *Journal of the American Medical Association* examined signs of CTE in the brains of former National Football League (NFL) players (Mez et al., 2017). Of the 111 brains examined, 110 showed signs of CTE. In contrast, a comparison group of brains from former high school and college football players revealed somewhat lower rates of CTE, suggesting that more years playing football increases the risk of developing such severe damage. Although this study used a nonrandom sample of athletes, since families with concerns about players' long-term damage may be more likely to have donated their brains following their death, its findings are in line with those from other studies suggesting that repeated head injuries can lead to long-term brain damage. Such findings have led some players to retire in the prime of their careers, giving up lucrative salaries, to protect themselves from future consequences.

Injuries exert a huge cost on society, not only in terms of physical health and life expectancy but also in terms of financial costs. The total cost of injuries in the United States in 2013 was \$671 billion (Centers for Disease Control and Prevention, 2016b). The costs associated with fatal injuries were \$214 billion, while nonfatal injuries accounted for over \$457 billion. These costs included both direct costs of medical treatment and indirect costs due to lost work productivity.



Ezra Shaw/Getty Images

A. J. Tarpley played one year in the NFL before retiring at the age of 23 due to concerns about the long-term effects of concussion.

RISK OF INJURY ACROSS THE LIFESPAN

Although overall injuries are the fourth leading causes of death (following heart disease, cancer, and respiratory disease), the risk of injury, as well as death caused by injury, varies considerably across the lifespan (Heron, 2016) (see Table 6.1). This section will examine the risk of injury by age, including infancy and childhood, adolescence and young adulthood, and adulthood and older adulthood.

Infancy and Childhood

Although infants in the first year of life face a higher likelihood of death than older children (often due to complications associated with premature birth), childhood in general is a time of relatively low mortality. However, and as shown in Figure 6.1, the leading cause of death for children from ages 1 to 14 is unintentional injury, and the fourth leading cause of death, following cancer and heart disease, is homicide (Heron, 2016).

LO 6.2

Compare the risk of injury across the lifespan

Table 6.1 Leading Causes of Death by Age

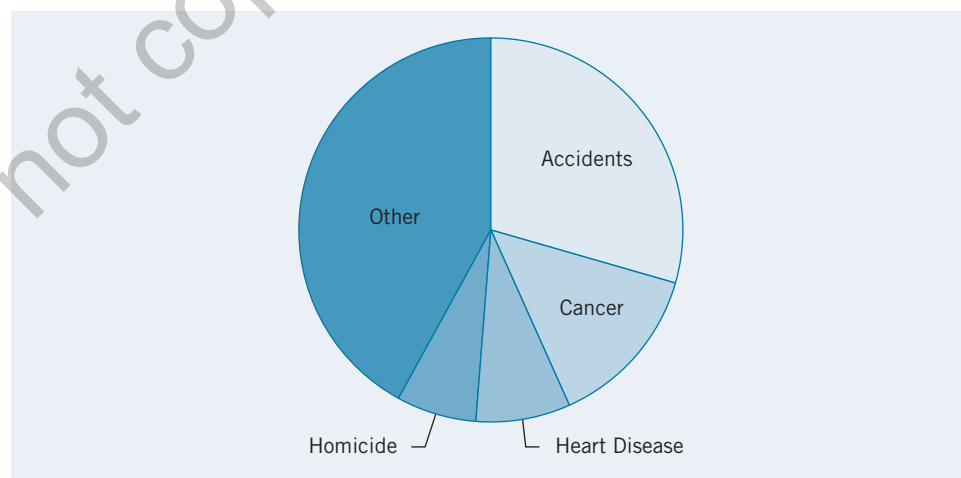
- Birth to Age 1: Congenital anomalies, premature birth, SIDS
- Ages 1 to 4 years: Injuries, congenital anomalies, homicide
- Ages 5 to 9 years: Injuries, cancer, congenital anomalies
- Ages 10 to 14 years: Injuries, cancer, suicide
- Ages 15 to 24 years: Injuries, suicide, homicide
- Ages 25 to 34 years: Injuries, suicide, homicide
- Ages 35 to 44 years: Injuries, cancer, heart disease
- Ages 45 to 54 years: Cancer, heart disease, injuries
- Ages 55 to 64 years: Cancer, heart disease, injuries
- Ages 65 years and over: Heart disease, cancer, respiratory disease

Although heart disease, cancer, and respiratory diseases are overall the leading causes of death, more people ages 1 to 44 years die from injuries than any other cause.

Source: National Center for Health Statistics (2017).

The specific types of unintentional injuries that lead to death vary considerably by age (Heron, 2016) (see Table 6.2). For infants younger than 1, suffocation causes the vast majority of injury deaths. For children ages 1 to 4, the leading causes of injury-related death are drowning and car accidents. For children ages 5 to 9, injury-related deaths are most commonly caused by car accidents, drowning, and fire/burns. For children ages 10 to 14, most injury-related deaths have historically been caused by car accidents; however, suicide is now the leading cause of injury-related death in children ages 10 to 14. This change is due in part to substantial decreases in the prevalence of fatal car accidents but also reflects an increase in rates of youth suicide.

Figure 6.1 Leading Causes of Death for Children Ages 1 to 14



Source: Created by Catherine A. Sanderson, based on data from Heron, M. (2016). Deaths: Leading causes for 2014. *National Vital Statistics Reports*, 65(5), 1–96.

Table 6.2 Leading Causes of Injuries Leading to Death in Children

- Younger than 1: Unintentional suffocation, homicide, car accident
- Ages 1 to 4: Drowning, car accident, homicide
- Ages 5 to 9: Car accident, drowning, fire/burns
- Ages 10 to 14: Suicide, car accident, homicide

Although the types of injuries leading to death vary considerably by age, injuries are the leading cause of death in children ages 1 to 14.

Source: Kochanek, Murphy, Xu, & Tejada-Vera (2016).

Children also experience many nonfatal injuries. The leading cause of nonfatal injury in children of all ages is falling, such as falling down stairs, out of a window, or out of a bed. Falls from playground equipment are also relatively common during childhood. Other sources of injury during childhood include being struck by or against something (such as running into an opening door), stings and bites (from insects, animals, other children), and, for children ages 10 to 14, overexertion (such as from pushing too hard during sports practice). As described in **Focus on Development**, early sport specialization contributes to injuries in children, which can have lasting consequences.

Adolescence and Young Adulthood

Injury is also one of the leading causes of deaths for adolescents and young adults (ages 15 to 24) (Heron, 2016). As shown in Figure 6.2, over 40% of deaths in people in this age group are caused by accidents, and the second and third leading causes of death in this age group are suicides and homicides. In sum, 73% of deaths to adolescents and young adults are caused by either unintentional or intentional injuries.

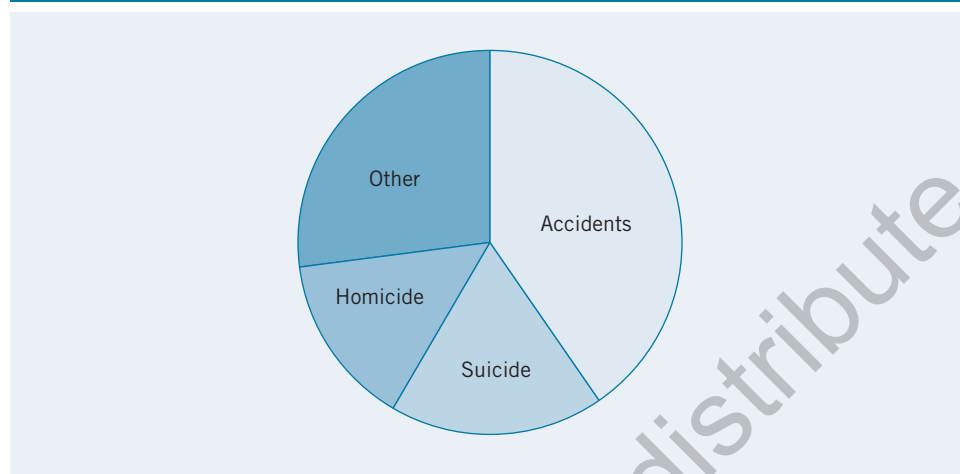
FOCUS ON DEVELOPMENT

The Hazards of Early Sport Specialization

As you may have heard, there is a growing trend among youth athletes toward sport specialization, meaning focusing on excelling at a single sport instead of playing a variety of different sports. Unfortunately, evidence now suggests that this choice may increase athletes' risk of experiencing an injury. For example, researchers in one study of high school athletes found that those who specialized in a single sport, or trained in one sport for more than eight months out of the year, were more likely to report a history of knee or hip injuries (Bell et al., 2016). Moreover, athletes who specialize in an

individual sport, such as gymnastics or tennis, are at higher risk for experiencing overuse injuries than those who play team sports. Kids who play individual sports usually start training at a younger age and spend more hours a week training, which both may increase their risk of developing an overuse injury. These findings suggest that parents and coaches should encourage young athletes to pursue a range of different types of sports and other activities and to limit the amount of time they spend training to avoid lasting injuries (Pasulka, Jayanthi, McCann, Dugas, & LaBella, 2017).

Figure 6.2 Leading Causes of Deaths for Adolescents and Young Adults (Ages 15–24)



Source: Created by Catherine A. Sanderson, based on data from <https://www.cdc.gov/nchs/data/hus/hus16.pdf#019>.

The leading cause of unintentional injuries leading to death in people age 15 to 24 is car accidents (Heron, 2016). Many of these accidents are a result of unsafe driving, including speeding, driving under the influence of alcohol, and driving while distracted (e.g., talking on a cell phone, texting). (You'll learn more about why car accidents are so prevalent for this age group in the next section.) Unintentional poisoning, meaning overdoses, also causes an increasing number of unintentional deaths in this age group.

Adolescents and young adults also experience nonfatal injuries. The leading causes of such injuries during this age period are being struck by or against something, falling, and motor vehicle accidents. Some of the same factors that contribute to fatal injuries, such as alcohol use and unsafe driving, also contribute to nonfatal injuries.

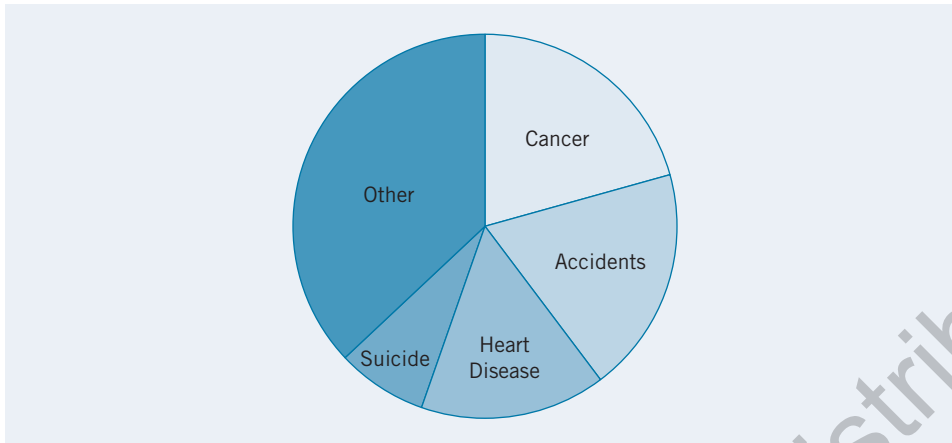
Adulthood and Older Adulthood

As shown in Figure 6.3, injuries cause about 20% of all deaths in adulthood. However, the impact of injuries on fatalities changes dramatically with age. Unintentional injuries are the leading cause of death in adults ages 25 to 44 but only the third leading cause of death in adults ages 45 to 64, following cancer and heart disease (Heron, 2016). In older adults, meaning those 65 and older, unintentional injuries cause only 2.5% of all deaths; chronic diseases cause most of the deaths for people in this age group.

The specific causes of injury-related deaths vary some with age (Heron, 2016). For adults ages 25 to 64, poisoning, meaning drug overdose, is the leading cause of injury-related death, followed by car accident. For those ages 25 to 34, homicide is the third leading cause of injury-related death, whereas for those ages 35 to 64, suicide is the third leading cause of injury-related death. However, the leading causes of injury-related deaths are quite different for adults ages 65 and higher. The vast majority of injury-related deaths in older adulthood are caused by falls; car accidents and suicide are the second and third leading causes of injury-related deaths, respectively.

Although throughout adulthood, falls are the leading cause of nonfatal injury, falls are especially common in older adults (Bergen, Stevens, & Burns, 2016). Risk factors for experiencing

Figure 6.3 Leading Causes of Death for People Ages 25 to 64



Source: Data from Heron (2016).

falls including poor vision, lack of physical activity (which causes impairments in balance as well as loss of muscle tone), side effects of medications, and other chronic diseases, such as arthritis and Alzheimer's disease; many of these factors are more prevalent with age. Falls can lead to serious problems, including head injuries and broken bones. The other two major causes of nonfatal injuries in adulthood are being struck by something or someone and overexertion.

UNDERSTANDING UNINTENTIONAL INJURY

As described in the prior section, unintentional injuries are a leading cause of death throughout the lifespan and can also result in nonfatal injuries with sometimes serious and lasting consequences. In this section, you'll learn about the most common causes of such deaths as well as risk factors contributing to such injuries.

Common Causes of Unintentional Injury

Although for many years, car accidents were the leading cause of injury-related death in the United States, more people now die from drug overdoses than in car accidents. This section examines the three leading causes of death from unintentional injuries: poisoning, car accidents, and falls.

Poisoning

Poison describes any substance that can be harmful to your health if too much of that substance is taken into your body via any mechanism (e.g., eaten, inhaled, injected, or absorbed through the skin). The most common type of poisoning in adults is the use of illegal drugs, such as cocaine or heroin, or the use of prescription drugs, such as opiates. In children, poisoning often occurs when someone accidentally consumes a drug, such as when a toddler mistakes a medication for candy. Poisoning can even happen unintentionally and without a person's awareness. For example, carbon monoxide poisoning can be caused by poorly

LO 6.3

Summarize the causes of and risk factors for unintentional injuries

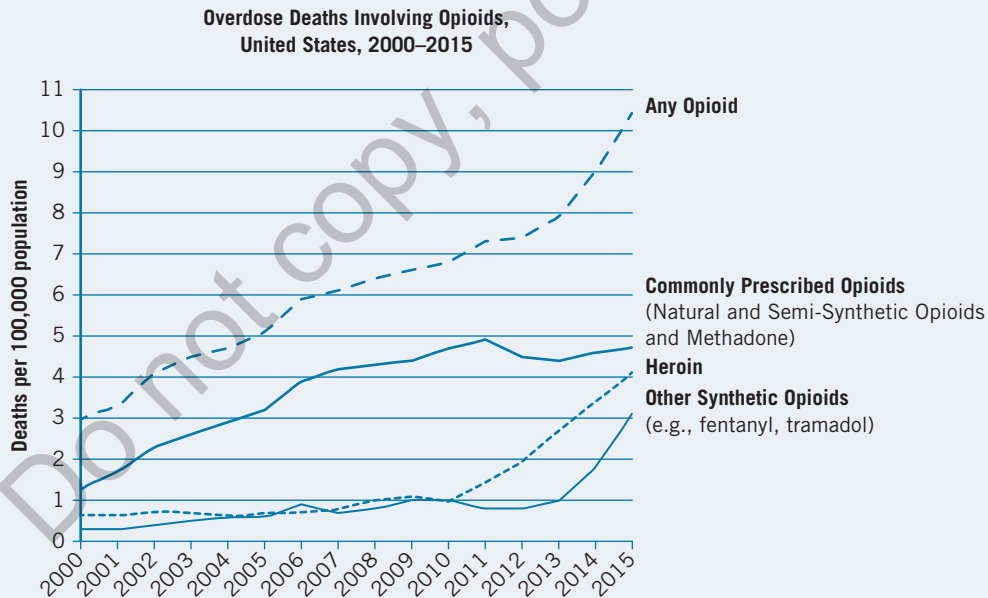
vented gas furnaces and appliances, gas generators, and the indoor use of charcoal grills or portable stoves.

Poisoning is the leading cause of unintentional injury–related death in the United States (Heron, 2016). The majority of these deaths involve the use of an opioid. Although some of these deaths are caused by the use of illicit drugs, such as heroin, an increasing number are caused by the use of prescription opioids, such as oxycodone, methadone, and hydrocodone (as shown in Figure 6.4). In fact, 91 Americans die every day from an opioid overdose. Moreover, almost 2 million Americans abuse prescription opioids each year, and every day over 1,000 people are treated in emergency rooms for misusing prescription opioids.

Prescription opioids have been used for years to treat moderate to severe pain and hence are often prescribed for patients who need assistance in managing the pain caused by surgery, a severe injury, or a serious health condition, such as cancer. However, many people are now using opioids to manage the pain associated with less serious chronic types of pain, such as back pain or osteoarthritis. Many of these people may initially intend to use opioids for only a short period of time but then find themselves addicted and hence unable to stop. (This process of addiction is described in more detail in *Chapter 7: Substance Use and Abuse.*) Moreover, many people who become addicted to prescription opioid drugs then start using heroin, which is cheaper and more readily available.

Although anyone can become addicted to, and overdose on, both prescription and illicit drugs, certain people are at greater risk than others. The number of deaths caused by prescription opioid deaths is highest among those ages 25 to 54 years, and higher in men than in women (Centers for Disease Control and Prevention, 2017r). Prescription drug overdose rates are also higher among non-Hispanic Whites and American Indians/Alaskan Natives than

Figure 6.4 Increases in Overdose Deaths Over Time



The number of deaths caused by overdoses of opioids—including both prescription opioids and illicit opioids—has increased substantially in recent years. Moreover, these numbers are probably an underestimate, since in about 20% of drug overdose deaths, a specific drug is not listed on the death certificate.

Source: Centers for Disease Control and Prevention (2017), <https://www.cdc.gov/drugoverdose/data/analysis.html>.

among non-Hispanic Blacks and Hispanics. Heroin use is more common in men than in women, although rates of use among women are rapidly increasing. Heroin use is most common among White people ages 18 to 25 with relatively low income.

Although relatively few deaths in children are caused by poisoning—because they do not abuse drugs as frequently as older people—an estimated 60,000 children visit emergency rooms each year due to medication poisonings (Safe Kids Worldwide, 2017). Very young children (ages 1 and 2) are most at risk for experiencing poisoning. The most common causes of poisoning among young children are cosmetics and personal care products, household cleaning products, and pain relievers. In many cases, children simply ingest something they've seen a parent, sibling, or grandparent take, which can include prescription drugs as well as over-the-counter drugs, nutritional supplements, or vitamins. One recent study found that rates of children seen at a hospital or poison control center for marijuana exposure increased substantially following state legalization (Wang et al., 2016).



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Car Accidents

Car accidents are the largest cause of unintentional injury deaths in people ages 5 to 24 (Heron, 2016). Each year in the United States alone, more than 32,000 people are killed and another 2 million are injured from car accidents. Car accidents also cause other types of lasting but not fatal injuries. For example, car accidents are the leading cause of spinal cord injuries (O'Connor, 2002). Car accidents can also lead to relatively minor injuries, such as fractures, sprains/strains, internal bleeding, and bruising.

Many of these deaths are caused by behavioral choices. For example, one in three deaths from car accidents involves a drunk driver, and nearly one in three deaths involves speeding (Centers for Disease Control and Prevention, 2016f). Deaths from car accidents also result from people not wearing seat belts and not having children in properly installed car seats and booster seats. One study analyzing data from over 18,000 children (ages 14 and younger) who were involved in a fatal crash found that 20% were unrestrained or inappropriately restrained, suggesting that increasing children restraint use would be an effective strategy for reducing unintentional injuries (Wolf et al., 2017).

Distracted driving also contributes to a substantial number of car crashes each year. Every day in the United States, nine people are killed and over 1,000 people are injured from crashes resulting from a distracted driver (National Center for Statistics and Analysis, 2017). Distraction can be visual, such as when you take your eyes off the road, but can also be manual, when you take your hands off the steering wheel, or cognitive, meaning you take your mind off driving. Although talking on a cell phone and texting while driving are two common types of activities that can lead to distraction, other distractions that can impair driving include eating or drinking, applying makeup, and adjusting the radio. Researchers in one study using a driving simulator found that people texting made as many driving errors—such as speeding, straying from their lane position, and delayed reaction time—as those with a blood alcohol concentration of .07 (Leung, Croft, Jackson, Howard, & McKenzie, 2012).

Falls

The third leading cause of unintentional injury-related death in the United States is falls (Heron, 2016). Moreover, nonfatal falls cause many serious injuries, such as broken bones

Drug overdose deaths have increased substantially over the last 20 years and show no signs of decreasing. In fact, estimates are that approximately 64,000 people died from drug overdoses in 2016, the largest number of such deaths ever recorded (Centers for Disease Control and Prevention, 2017s).

and head injuries. Over 800,000 people are hospitalized for a fall-related injury, such as hip fracture or brain injury, each year. More than 95% of hip fractures are caused by falling, and falls are the most common cause of traumatic brain injury.

Not surprisingly, age has a substantial impact on the likelihood of being injured or dying in a fall (Heron, 2016). Falls are the leading cause of nonfatal injuries for all children ages 0 to 19, with approximately 8,000 children every day—and nearly 2.8 million children a year—being treated in an emergency room for a fall-related injury. For very young children, many of these injuries are caused by falls from cribs, playpens, and bassinets, whereas in older children, fall-related injuries are often a result of playground accidents (Tinsworth & McDonald, 2001; Yeh, Rochette, McKenzie, & Smith, 2011).

Falls are also a very common cause of injury, and are the leading cause of injury-related deaths, in older adults, as described earlier in this chapter (Heron, 2016). Approximately 2.8 million people ages 65 and older are treated in the emergency room each year for injuries resulting from a fall, and over 300,000 older people are hospitalized for a hip fracture each year. Many of these falls are caused by hazards in the home, such as broken or uneven steps, throw rugs, or clutter. Simple changes in the environment can therefore dramatically reduce the risk of falls.

Risk Factors for Unintentional Injury

Although unintentional injuries, and even deaths, are often seen as “accidents” that are simply a part of daily life, the reality is that many of these injuries are caused by specific predictable (and thus preventable) causes. These include personality traits, substance abuse, social influence, and poverty.

Personality Traits

As you might predict, people vary considerably in their overall likelihood of engaging in risky behavior that leads to injury. For example, people with angry, impulsive personality traits are more likely to engage in aggressive driving behavior, such as swearing at or threatening to hurt another driver (Stephens & Sullman, 2015). These people become irate easily, such as by slow drivers and traffic disruptions. This type of driving behavior, in turn, increases their likelihood of being involved in a car accident (Wickens, Mann, Ialomiteanu, & Stoduto, 2016). People who are high on sensation-seeking and impulsivity also show riskier driving behavior, which increases the likelihood of accidents (Dahlen, Martin, Ragan, & Kuhlman, 2005; Schwebel, Severson, Ball, & Rizzo, 2006).

Particular personality traits may also lead people to be more susceptible to the influence of media violence. For example, although people who watch a lot of television are at greater risk overall of experiencing an injury, this association is especially strong for people who are high in hostility (Fabio et al., 2015). In fact, for people who are high in hostility, watching more television is associated with a 40% greater likelihood of being hospitalized due to an injury five years later. Researchers believe people who are high in hostility are more likely to imitate risky behaviors they see on television, experience higher levels of physiological arousal from observing media violence, and may become desensitized to violent behavior after repeated exposure. All of these factors lead to an increase in risky, and violent, behaviors, which increases the likelihood of injury.

In contrast, other personality traits predict a lower likelihood of injury. As you may remember for *Chapter 5: Managing Stress*, people who are conscientious are less likely to engage in all types of risky health-related behaviors, including substance abuse, violence, and risky driving (Bogg & Roberts, 2004; Schwebel, Severson, Ball, & Rizzo, 2006). For example, one study of 103 male military personnel found that conscientiousness was associated with

safer driving behavior, such as following the speed limit and obeying driving rules (Booth-Kewley & Vickers, 1994). Similarly, a study of teenage drivers found that conscientiousness predicted lower rates of risky driving (such as rapid starting, hard breaking, and sharp turns), which in turn led to fewer crashes and near crashes (Ehsani et al., 2015).

However, conscientiousness is not always linked with safer driving. Researchers in one recent study examined the association between personality traits and distracted driving in two groups of drivers: teenagers (ages 16 to 19) and older adults (ages 65 to 85) (Parr et al., 2016). Participants completed measures assessing personality as well as their frequency of engaging in distracted driving behaviors, such as talking on their cell phones and sending text messages. Among teenage drivers, higher levels of conscientiousness were associated with an increase in both texting and using a cell phone while driving. Although you might expect that people higher in conscientiousness would be more cautious, these drivers may feel a need to diligently respond to others, which in turn leads to such risky behavior. However, conscientiousness was not associated with distracted driving in older adults, demonstrating that personality traits may predict risky behavior in different ways across the lifespan.

What You'll Learn 6.2

Substance Abuse

Substance use is another behavioral choice that increases the likelihood of many different types of injury. As you'll learn more about in *Chapter 7: Substance Use and Abuse*, the physiological effects of alcohol impair people's ability to process information and consider the long-term consequences of their behavior (Gable, Mechin, & Neal, 2016; Sevincer & Oettingen, 2014; Steele & Josephs, 1990). Alcohol use also directly impacts people's ability to drive safely in a number of ways, including by reducing muscle coordination and impairing vision and perception.

These physiological effects of alcohol, not surprisingly, contribute to numerous types of injuries. Nearly 10,000 Americans are killed in alcohol-related driving accidents, which accounts for nearly one third (31%) of all traffic-related deaths in the United States and 28 people every single day (Centers for Disease Control and Prevention, 2016f). Alcohol also increases the risk of experiencing other types of unintentional injuries, such as falls, drownings, and burns. For example, one study examining hospital admissions found that nearly half of all people admitted for pedestrian and near-drowning injuries had consumed alcohol (Miller & Spicer, 2012).

Not surprisingly, substance abuse also increases the risk of both using and overdosing on opioids. People who are addicted to alcohol are twice as likely to be addicted to heroin, and people who are addicted to prescription opioids are 40 times as likely to be addicted to heroin (Centers for Disease Control and Prevention, 2017w). Moreover, using heroin along with alcohol or other drugs substantially increases the likelihood of overdosing.

Social Influence

Social factors exert a strong influence on the likelihood of injury, and are a particularly strong influence during adolescence. For example, although the presence of friends has no impact on adults' driving behavior, adolescents who are driving with friends engage in more risky driving than they do when alone (Gardner & Steinberg, 2005). Moreover, adolescents who believe their friends are watching them engage in riskier behavior than when they are alone (Chein, Albert, O'Brien, Uckert, & Steinberg, 2011). These findings about the impact of friends on teenage drivers has led many states to restrict newly licensed teenagers from driving with peers unless an adult is also in the car.

Not surprisingly, riskier driving increases the risk of car accidents. For example, researchers in one study analyzed factors contributing to serious car crashes by teenage drivers (Curry, Mirman, Kallan, Winston, & Durbin, 2012). Both male and female drivers with peer

Figure 6.5 Data From Simons-Morton, Lerner, and Singer, 2005



Source: Data from Simons-Morton, Lerner, & Singer (2005).

passengers were more likely to be distracted just before a crash than when teens were driving alone. Specifically, 71% of males and 47% of females reported they were distracted by something inside the vehicle (e.g., texting, eating, looking at other passengers) before they crashed. Moreover, males with passengers were nearly six times as likely to perform an illegal maneuver (such as running a stop sign or doing an illegal U-turn) and twice as likely to drive aggressively (such as speeding or tailgating) as those driving alone. As shown in Figure 6.5, male teenage drivers are especially likely to drive aggressively in the presence of other males.

Encouragingly, parents can play a valuable role in decreasing risky behavior that is linked to injuries. For example, teenagers who report having close relationships with their parents are less likely to engage in substance abuse, which in turn reduces the risk of unintentional injuries (Kuntsche, van der Vorst, & Engels, 2009; Schofield, Conger, & Robins, 2015). Parent monitoring of teenagers' behavior also reduces the risk of substance abuse (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Lac & Crano, 2009). Moreover, and as described in **Focus on Neuroscience**, a mother's presence in a car activates particular parts of the brain that regulate behavior, which in turn leads teenagers to make safer driving choices.

Poverty

One consistent finding is that people who are living in poverty are at greater risk of experiencing an injury. Specifically, compared with children from higher socioeconomic backgrounds, children living in poverty are more likely to experience recreation or play injuries and are more likely to die from fires, falls, and drownings (Birken & MacArthur, 2004). Studies in

FOCUS ON NEUROSCIENCE

Why Mom's Presence Improves Teen Driving

Researchers in this study examined how the presence of mothers influenced teenagers' brain activity in response to risky situations (Telzer, Ichien, & Qu, 2015). To test this question, 14-year-olds completed a driving simulation task either alone or in the presence of their mother while researchers examined blood flow in their brains. Teenagers who were driving alone showed blood flow to the ventral striatum—a part of the brain that processes rewarding experiences—whenever they engaged in risky driving behavior, such as running a yellow light. But when their mother was present and watching their behavior,

they were more likely to step on the brakes when seeing a yellow light and didn't show the heightened brain activation when engaging in risky driving. In other words, their mother's presence made being risky feel less rewarding. Moreover, when teenagers braked when their mother was watching, another part of the brain—the prefrontal cortex, which regulates behavior—was activated; this activation did not occur when they were alone. These findings provide powerful evidence that a mother's presence both reduces the rewarding nature of risky behavior and increases the likelihood of safe behavior.

both Philadelphia and Boston reveal that children living in lower-income neighborhoods are more than twice as likely to die in a house fire than children living in higher income neighborhoods (Shai & Lupinacci, 2003; Wise, Kotelchuck, Wilson, & Mills, 1985).

One explanation for this link between socioeconomic status and risk of injury is that people living in poverty experience less safe physical environments. For example, children living in poverty are less likely to live in homes with working smoke alarms and safe hot-water temperatures, which increases their risk of experiencing fire and scalding burns (Gielen et al., 2012; Warda, Tenenbein, & Moffatt, 1999). Similarly, a study in New York City found that playgrounds in low-income areas had more maintenance-related hazards, such as rusty play equipment and inadequate fall surfaces, than playgrounds in high-income areas (Suecoff, Avner, Chou, & Crain, 1999).

Another explanation is that the link between poverty and risk of injury is explained by a lack of family resources (Schwebel & Gaines, 2007). For example, families living in poverty often lack money to provide safer environments, such as by buying car seats or installing smoke detectors. Children living in poverty also spend more time unsupervised, which substantially increases their risk of injury. In line with this view, parents with low-paying jobs that make paying for childcare difficult are more likely to leave children at home alone.

Parents living in poverty also tend to have less education compared to families with greater financial resources, which is linked with an increased risk of childhood injuries (Schwebel & Gaines, 2007). In line with this view, children who are born to mothers younger than age 20 and with less than a high school education are at significantly greater risk of dying due to injuries than children born to mothers older than 30 and those with a college education (Scholer, Hickson, & Ray, 1999; Scholer, Mitchell, & Ray, 1997).



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Children living in poverty are significantly more likely to experience an unintentional injury, in part because they often live in less safe environments.

Families living in poverty are also likely to experience more stressful life events, which in turn may increase the risk of injury. Parents who are experiencing stress may be distracted and thus less able to provide careful supervision of children. In line with this view, among low-income mothers with a child under the age of five, experiencing more stressful life events is associated with a higher rate of injury (Vaughan, Anderson, Agran, & Winn, 2004). In fact, the presence of stressful life events is a more important predictor of the rate of injury than physical factors related to the home environment, such as the presence of childproof locks on cabinets, the presence of stairs, and the presence of broken locks and doors.

Finally, people living in poverty are more likely to use drugs, which in turn increases the risk of addiction and overdose (Adelman & Taylor, 2003; Jones, Logan, Gladden, & Bohm, 2015). Although the specific link between poverty and drug use is unclear, one possibility is that people living in poverty use drugs as a way of coping with the stresses of their daily lives. Another explanation is that parents living in difficult financial circumstances are less able to provide supervision, which increases the likelihood that children will start using drugs. People living in poverty also typically have less ability to access services to treat drug addiction.

UNDERSTANDING INTENTIONAL INJURY

LO 6.4

Summarize the causes of and risk factors for intentional injuries

Intentional injury is caused by deliberate violent behavior that is intended to inflict harm. This section describes the most common causes of and risk factors for experiencing intentional injuries.

Common Causes of Intentional Injury

Many deaths, and even more injuries, are caused each year by violent behavior. This includes behavior that is intended to harm oneself, such as cutting or suicide, or others, such as homicide or sexual assault. As you'll learn in this section, intentional injuries can be caused by strangers as well as by family members.

Suicide

Suicide is the 10th overall leading cause of death in the United States, with more than 42,000 suicides occurring each year (Heron, 2016). Suicides cause many more deaths each year than homicides or HIV/AIDS; on an average day, 121 people die by suicide in the United States. As shown in Figure 6.6, nearly half of all suicides are committed by guns. Moreover, many more people attempt suicide or consider attempting suicide.

Although rates of death by suicide have increased steadily over the last 20 years, the risk of suicide varies considerably by age. As you learned earlier in this chapter, suicide is one of the leading causes of deaths for adolescents and young adults. Suicide rates are particularly high in lesbian, gay, and bisexual teenagers. One study of nearly 30,000 high school students revealed that lesbian, gay, and bisexual (LGB) students were more than five times as likely to have made a suicide attempt in the previous 12 months as heterosexual students (21.5% versus 4.2%) (Hatzenbuehler, 2011). Students living in gay-supportive environments, however, were less likely to make an attempt than those living in less supportive environments, suggesting that bullying and discrimination may contribute to the increased risk of suicide among LGB teenagers. Rejection by family members is particularly impactful in terms of suicide risk; lesbian, gay, and bisexual young adults who reported higher levels of family rejection during their teenage years were more than eight times as likely to report a suicide attempt than those experiencing no or low levels of rejection (Ryan, Huebner, Diaz, & Sanchez, 2009).

Figure 6.6 Suicide Deaths by Method Used



Source: Created by Catherine A. Sanderson, based on data from <https://www.cdc.gov/nchs/fastats/suicide.htm>.

Older adults are also increasingly at risk of death by suicide. Rates of suicide are increasing rapidly in middle-age men (ages 45 to 64), with White men being particularly at risk of dying by suicide (Curtin, Warner, & Hedegaard, 2016; Hu, Wilcox, Wissow, & Baker, 2008). One factor that is thought to contribute to these high rates is economic pressure, which middle-age men may feel acutely as they try to provide for their families. In support of this view, rates of mortality in this age group are higher than expected among men without a college degree and in poorer states (Alabama, West Virginia, Mississippi) (Case & Deaton, 2015; Squires & Blumenthal, 2016). Men may also be less willing than women to seek help for depression and hence be less likely to get support from family members, friends, or a therapist.

The risk of suicide varies substantially by gender. Women attempt suicide approximately three times more often than men (American Foundation for Suicide Prevention, 2017). However, more men than women die from suicide; men are four times as likely to die from suicide as women. This gender difference is caused at least in part by the differences in methods used—men tend to use “more effective” methods, such as firearms and hanging, whereas women are more likely to use “less effective” methods, such as poisoning (Fine, Rousculp, Tomasek, & Horn, 1999). Firearms are the most commonly used method of suicide among males (56.9%), whereas poisoning is the most common method of suicide for females (34.8%) (Heron, 2016).

The risk of suicide also varies substantially by race/ethnicity. In 2015, the rate of suicide was highest among American Indians and Alaska Natives, followed by Whites. Lower rates of suicide are found among Latinos, Asians, and Blacks (Heron, 2016). Similarly, the percentages of adults age 18 or older having suicidal thoughts in the last year is higher among American Indians/Alaskan Natives (4.8%) and Whites (4.1%) than among Latinos (3.6%), Asians (3.3%), and Blacks (2.9%).

Nonsuicidal Self-Injury

Self-directed violence also includes **nonsuicidal self-injury**, meaning the deliberate, self-inflicted destruction of body tissue resulting in immediate damage, without suicidal

intent and for purposes not culturally sanctioned (Sieman & Hollander, 2001). This type of injury includes cutting, scratching, and burning the skin in an attempt to harm oneself. Approximately 383,000 people in the United States are treated at an emergency room each year for self-inflicted injuries (Centers for Disease Control and Prevention, 2017u).

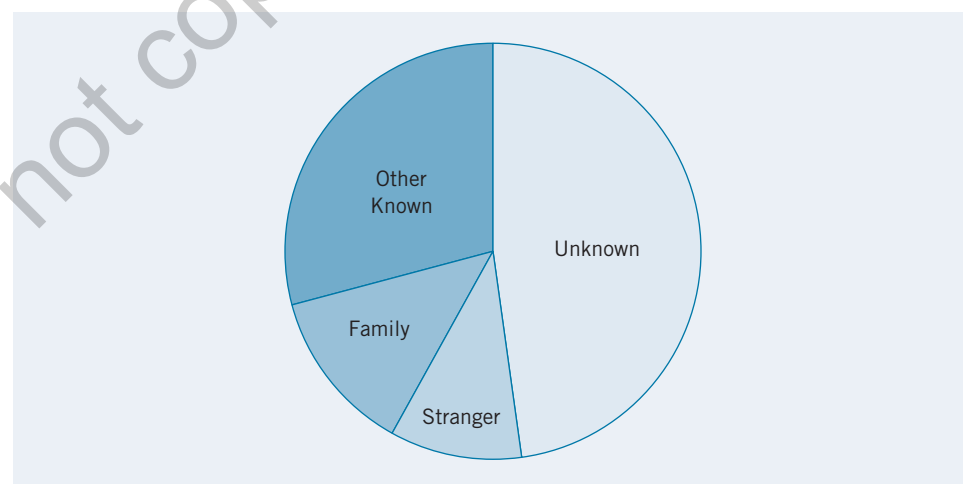
Nonsuicidal self-injury is sadly quite prevalent in both the high school and college populations. A study of high school students found that 15% reported engaging in self-harming, with such behavior being more common in girls than in boys (Laye-Gindhu & Schonert-Reichl, 2005). Moreover, over half of girls (53%) and 28% of boys reported having thought about harming themselves in some way. Such behavior is often triggered by feelings of depression, loneliness, and negative feelings about the self (e.g., anger, dislike, inadequacy). Similarly, a study of students at eight universities revealed that approximately 15.3% of students reported engaging in such behavior at some point (Whitlock et al., 2011). Women were more likely to self-injure because they were upset or with the hope that someone would notice them. Men were more likely to self-injure out of anger and following intoxication. Unfortunately, only 8.9% of students reported disclosing such behavior to a mental health professional.

Homicide and Assault

Another leading cause of injury-related deaths is homicide, which is responsible for an estimated 15,809 deaths per year (Heron, 2016). In many cases, the person who commits the homicide is known to the victim. As shown in Figure 6.7, about 13% of homicides are committed by a family member, and another 29% are committed by someone known to the victim, such as a dating partner, friend, or acquaintance (Federal Bureau of Investigation, 2016). Over 70% of homicides are caused by guns.

The risk of homicide varies across the lifespan. Homicide is the third leading cause of death for people ages 10 to 24, the fourth leading cause for children ages 1 to 9, and the fifth leading cause for people ages 25 to 44 (Heron, 2016). It is not among the 10 leading causes for people age 45 and over. In addition, and as described in **Focus on Diversity**, there are substantial differences in the rate of homicide deaths as a function of both race and gender.

Figure 6.7 Homicide by Type of Relationship



Source: Created by Catherine A. Sanderson, based on data from <https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015/offenses-known-to-law-enforcement/expanded-homicide>.

FOCUS ON DIVERSITY

The Sad Reality of Homicide Deaths

Although overall homicide causes 13.7% of all deaths for people ages 10 to 24, the risk of homicide is substantially greater for some people than for others (Heron, 2016). Homicide causes fewer than 5% of deaths for White women ages 15 to 24 and fewer than 8% of deaths for White men ages 15 to 24. In contrast, homicide causes 19.1% of all deaths of Black women ages 15 to 19 and 15.3% of all deaths for Black women ages 20 to 24. However, nearly 50% of deaths of Black males ages 15 to 24 are caused by homicide: 48.6% for those ages 15 to 19 and 47.4% for those ages 20 to 24. In fact, at every single age range, Blacks are more likely than Whites to die from homicide; homicide is not among the top two causes of death for Whites at any age but is the leading cause

of death for Blacks ages 15 to 34. This sad reality contributes substantially to the lower overall life expectancy for Blacks compared to Whites.

What accounts for this dramatic difference in likelihood of homicide as a function of race? One explanation is the rate of access to potentially lethal weapons in the inner cities, where Blacks are more likely to live than Whites. For example, one study found that nearly half of seventh- and eighth-grade boys living in an inner city carried knives and 25% carried guns (Webster, Gainer, & Champion, 1993). Another factor is clearly poverty, which again is more likely to affect Blacks than Whites and increases a person's likelihood of both committing and being victimized by violence (Greenberg & Schneider, 1994).

Violent crimes also include assaults that are not fatal. In 2015, there were an estimated 764,449 aggravated assaults, meaning attacks intended to inflict severe bodily injury (FBI, 2016). Approximately 26% of these were committed with personal weapons, such as hands, fists, or feet; 24% used guns, 18% used knives or other cutting instruments, and other weapons were used in 31% of these assaults.

Teenagers and young adults are particularly at risk of experiencing an assault. Nearly 500,000 young people ages 10 to 24 are treated in emergency departments each year for injuries sustained due to violence-related assaults (Centers for Disease Control and Prevention, 2017y). Moreover, in a nationwide survey of high school students, about 6% reported not going to school on one or more days in the last 30 days because they felt unsafe at school or on their way to and from school.

Intimate Partner Violence (IPV)

Although we often think about violent behavior as occurring between strangers, violence occurs far too often between people in close relationships. **Intimate partner violence (IPV)** describes physical, sexual, or psychological aggression that is committed by a current or former romantic partner (Centers for Disease Control and Prevention, 2017n). IPV can include many different types of violence, including hitting, choking, stalking, or threats of physical violence. It may also include sexual assault. This type of violence can occur among heterosexual or same-sex couples.

Many people experience some type of violence from an intimate partner at some point in their lives. An estimated 27% of women and 11% of men in the United States report having experienced some type of sexual violence, physical violence, or stalking by an intimate partner (Smith et al., 2017). Moreover, a study of high school students revealed that 20% of female students and 10% of male students have experienced some form of physical or sexual violence from a dating partner in the last year (Vagi, Olsen, Basile, & Vivolo-Kantor, 2015). Such violence can cause minor or major injuries, such as bruises, broken bones, or traumatic

brain injury. Each year, over 1,000 women and 200 men are murdered by a current or former intimate partner (U.S. Department of Justice, 2011).

Sexual violence on college campuses is a particular concern. Nearly 20% of female college students experience an attempted or completed sexual assault during their college years, with women being at particular risk during their first two years of college (Krebs, Lindquist, Warner, Fisher, & Martin, 2007). One recent study of nine colleges found that over 10% of women had experienced a completed sexual assault; most of these attacks were by men the women knew and trusted and often occurred while the women were incapacitated in some way, such as after drinking (Krebs et al., 2016). Although sexual assault is sometimes viewed as a concern only for women, men can also experience sexual assault. In fact, data from the study of nine colleges previously mentioned revealed that 3% of men reported experiencing sexual assault.

Child Abuse and Neglect

Child maltreatment describes four distinct types of behaviors: physical abuse, sexual abuse, emotional abuse, and neglect. Physical abuse includes punching, kicking, burning, or shaking a child and is typically what comes to people's minds when they think of child abuse. Sexual abuse may include sexual contact between an adult and a child but could also include exposing one's own genitals to a child or taking sexually explicit photos of a child. Emotional abuse describes rejecting, ignoring, or belittling the child or failing to give appropriate affection. The majority of child abuse cases—approximately 80%—involve neglect, which includes failing to give the child adequate food and clothing or leaving the child alone.

Child abuse and neglect are far too prevalent in the United States. An estimated 683,000 children are the victims of abuse and neglect, and about 1,670 children die from abuse or neglect each year (Heron, 2016). Moreover, these estimates are probably low, since many cases may not be reported. Consequences of child abuse include impaired cognitive and social skills, lower language development, blindness, and cerebral palsy (due to head trauma). Sadly, most of this abuse and neglect is caused by parents.



Boston Globe/Getty Images

Two-year-old Bella Bond's body was found inside a plastic garbage bag on the shore of Deer Island in Boston, Massachusetts, in June 2015. Her mother and mother's boyfriend were arrested and charged with her murder.

Sexual Violence

Sexual violence, meaning sexual activity when consent is not obtained or given, is a significant problem in the United States. Although sexual violence can happen to anyone, most victims are female, and most such violence is committed by a male the victim knows. One national survey revealed that 18.3% of women, and 1.4% of men, reported experiencing rape at some point in their lives (Black et al., 2011). In addition, over 5% of both men and women report having experienced some type of sexual violence (other than rape), such as sexual coercion or unwanted sexual contact, in the last year.

Risk Factors for Intentional Injury

A number of factors influence a person's risk for experiencing different types of violence. These include individual differences, substance abuse, social influence, poverty, and access to firearms.

Individual Differences

Many people who attempt suicide are suffering from a serious psychological disorder, such as major depressive disorder or bipolar disorder. In fact, estimates are that over 90% of the people who commit suicide have a psychological disorder (Cavanagh, Carson, Sharpe, & Lawrie, 2003). Many of these people have clinical depression, in which they feel an overwhelming sense of hopelessness and despair, have difficulty engaging in basic life tasks (e.g., working, studying, spending time with friends), and do not see their lives as improving in the future. **Table 6.3: Test Yourself** assesses a person's overall sense of hopelessness about her or his current and future lives, which is a risk factor for suicide (Ellis & Rufino, 2015). (If you, or someone you know, scores high on this measure, please seek help by talking to someone you trust or calling the National Suicide Prevention Lifeline at 1-800-273-8255.)

People who are high on impulsivity are more likely to commit violence against themselves as well as others (O'Connor & Nock, 2014). People who are impulsive do not think through the consequences of their actions and thus are more likely to act on a whim. In turn, people who are impulsive may react to feeling bad about themselves in some way by engaging in self-harm. In line with this view, girls with attention-deficit hyperactivity disorder (ADHD), and in particular those who are high on impulsivity, are three to four times more likely to attempt suicide and two to three times more likely to commit self-injury than those who do not have ADHD (Hinshaw et al., 2012). Similarly, people who are impulsive, and thus have difficulty with self-control, are more likely to engage in acts of aggression and violence (Bushman et al., 2016; Loeber & Farrington, 1998). One large-scale study found that men convicted of violent crimes had significantly lower scores on self-control, the inverse of impulsivity, than did those not convicted of violent crimes (Caspi et al., 1994).

People who are high on perfectionism, meaning an unrelenting self-pressure to be perfect, are also at increased risk of committing or attempting suicide (Blatt, 1995; Flett, Hewitt, & Heisel, 2014; O'Connor & Nock, 2014). According to the perfectionism social disconnection model, people who feel that others require them to be perfect, or themselves have an

Table 6.3 Test Yourself: Are You at Risk of Harming Yourself?

Please rate the following statements on a scale of 1 to 5 (*1 = strongly disagree to 5 = strongly agree*).

1. The world would be better off without me.
2. Suicide is the only way to solve my problems.
3. I can't cope with my problems any longer.
4. There is nothing redeeming about me.
5. I don't deserve to live another moment.
6. I can't stand this pain anymore.
7. I've never been successful at anything.
8. I am completely unworthy of love.
9. It is impossible to describe how badly I feel.
10. I can't tolerate being this upset any longer.

This scale measures feelings of pervasive hopelessness and helplessness, which predict suicidal intention. Higher scores indicate greater degrees of suicidal intent.

Source: Ellis & Rufino (2015).

excessive need to appear as perfect to others, experience a lack of social connection to others, and this feeling of aloneness can result in suicidal ideation and attempts (Hewitt, Flett, Sherry, & Caelian, 2006). In support of this model, college students who think about committing suicide have more perfectionistic tendencies than those without such thoughts (Hamilton & Schweitzer, 2000).

These consistent findings about the link between perfectionism and suicidal intent indicate that environments that place a high value on appearing perfect may lead to unintended, and dangerous, consequences. In line with this view, interviews with both high school students and their parents in a community in which at least 19 high school students, or recent graduates, had committed suicide over the last 15 years revealed an environment with intense pressure to succeed—both academically and athletically—which left teenagers feeling unable to admit to failure or to needing help (Mueller & Abrutyn, 2016). One teenage described her friend, who had committed suicide, as follows:

Like, she likely felt that she was a failure. And so, I think it's definitely tied to her thoughts about her own place in the stupid high school drama that we all grew up in, and her ability to survive—in a very basic sense—the culture of what she was dealing with. So, yeah. I think she probably felt like a failure. (pp. 888–889)

Substance Abuse

As described previously, substance use causes a number of physiological effects that impair people's ability to process information and consider the long-term consequences of their behavior. Moreover, substance use may also reduce people's normal inhibitions against engaging in violent behavior (Bushman, 1997; Weafer & Fillmore, 2012). These factors may all increase a person's risk of experiencing intentional injuries, including self-directed and interpersonal violence.

People with substance abuse disorders are at greater risk of committing suicide (Arsenault-Lapierre, Kim, & Turecki, 2004; Nordentoft, Mortensen, & Pedersen, 2011). In fact, people who abuse alcohol and/or drugs are six times as likely to attempt suicide as people who do not engage in substance abuse (Wilcox, Conner, & Caine, 2004). People who engage in substance abuse often also have other risk factors for suicide, such as depression or financial problems. Substance abuse is also more common in people who are generally impulsive, which may also contribute to a greater tendency to engage in impulsive behavior, including self-harm. Given the link between substance abuse and suicide, researchers in one study examined the link between restrictive alcohol policy and rates of suicide (Xuan et al., 2016). As predicted, states with more restrictive policies have lower rates of suicide, presumably because alcohol is less readily available.

People who engage in substance abuse are also at greater risk of engaging in violent behavior toward other people, including intimate partner violence and child abuse and neglect (Berger, 2005; Laslett, Room, Dietze, & Ferris, 2012). For example, male college students are more likely to commit acts of physical, psychological, or sexual aggression toward their female partners after drinking (Shorey, Stuart, McNulty, & Moore, 2014). The ready availability of alcohol in a given community—meaning the number of places in which alcohol is sold—is also linked with greater intimate partner violence (McKinney, Caetano, Harris, & Ebama, 2009). Increases in alcohol availability in a given geographic area presumably lead to more drinking, which in turn leads to more interpersonal violence. Alcohol use is also associated with more severe types of IPV; those reporting severe IPV (e.g., having been hit, choked, or threatened with a knife or gun) were approximately twice as likely to report alcohol use compared to those who reported mild IPV (e.g., having had something thrown at them or having been pushed, shoved, or slapped) (McKinney, Caetano, Rodriguez, & Okoro, 2010).

Finally, alcohol use is linked with an increased risk of both homicide and assault (Bushman et al., 2016). Among all homicide victims, 39.9% had been drinking alcohol, and about two thirds of these had a blood alcohol concentration level greater than or equal to 0.08%, the legal limit for drunk driving (Naimi et al., 2016). Visits to the emergency room for violence-related injuries are higher when alcohol prices are lower, once again suggesting that raising alcohol prices decreases its use, which in turn decreases violent behavior (Page et al., 2016).

Social Influence

Considerable research points to the role of social influence in leading to intimate partner violence (Bushman et al., 2016). People who are exposed to domestic violence as children are at greater risk of committing intimate partner violence themselves as adults, perpetuating a cycle of abuse (Capaldi, Knoble, Shortt, & Kim, 2012). These children learn that violence is an acceptable way of resolving conflicts with romantic partners and thus are more likely to both commit such violence themselves and accept such treatment by their own romantic partners. In line with this view, a 20-year longitudinal study of over 500 families found that children who observed violence between their own parents were three times as likely to commit violence toward their own partners as adults (Ehrensaft et al., 2003).

Observing domestic violence in the home also increases the risk of engaging in self-directed violence (O'Connor & Nock, 2014). One study found that 17.3% of adults who had been exposed to chronic domestic violence between their parents during childhood had made a suicide attempt compared to only 2.3% of those who had not witnessed such violence (Fuller-Thomson, Baird, Dhrodia, & Brennenstuhl, 2016).

Social influence—from family members, peers, and the media—also increases the risk of suicide (O'Connor & Nock, 2014). Specifically, **suicide contagion** describes how the exposure to suicide or suicidal behaviors within one's family, one's peer group, or through the media can result in an increase in suicide attempts (Gould & Lake, 2013; Poijula, Wahlberg, & Dyregrov, 2001). Researchers believe that some people who hear about another's self-inflicted death decide to imitate them in the particular way in which they died. For example, in one high school, two students committed suicide within four days (Brent et al., 1989). In the next 18 days, an additional seven students attempted suicide and 23 others reported having thoughts about suicide. This tendency is particularly strong among adolescents, who tend to be more impressionable and easier to influence toward conformity. In line with this view, people who experience the sudden death of a friend or family member from suicide are 65% more likely to attempt suicide themselves than if the person died by natural causes (Pitman, Osborn, Rantell, & King, 2016).

Social contagion can even occur through suicides publicized in the mass media. For example, after a suicide of a famous figure is widely covered by the media, rates of suicide increase significantly (Phillips, 1982; Phillips & Carstensen, 1986). This type of conformity occurs even if the suicide occurs on a television show—more suicide attempts occur in the weeks following a television movie about suicide or a suicide in a soap opera than in the weeks preceding (Gould & Shaffer, 1986).



In the spring of 2017, the National Association of School Psychologists issued a warning that vulnerable teenagers should not watch the Netflix series *Thirteen Reasons Why*, which focuses on a teenage girl who commits suicide. Research on suicide contagion suggests that exposure to such a program increases the likelihood that at-risk teenagers will attempt to harm themselves.

What You'll Learn
6.3

Researchers in one study examined whether media reports of high-profile homicides, such as mass killings and school shootings, increase the likelihood of similar acts occurring later on (Towers, Gomez-Lievano, Khan, Mubayi, & Castillo-Chavez, 2015). First, they gathered data on all mass killings (meaning those that killed four or more people) that occurred in the United States as well as all shootings that occurred in a school. Next, they examined whether these violent incidents predicted an increased likelihood for similar events to be carried out in the near future. Sadly, their findings revealed that both mass killings and school shootings increase the likelihood of similar acts in the next 13 days. Researchers believe that these acts may inspire already at-risk people to act on their intentions to commit violence.

Social contagion also helps predict other-directed violence. A large-scale study of gun violence in Chicago demonstrated that more than 60% of gun violence occurs within people directly connected through social networks (Green, Horel, & Papachristos, 2017). Specifically, if one member of a social network—defined as someone a person was arrested with for the same offense—is shot, it increases the likelihood of others in the social network being shot over the next 125 days.

Poverty

As described previously, people living in poverty are more likely to experience unintentional injuries; unfortunately, poverty is also a risk factor for experiencing intentional injuries, including assault, homicide, and even suicide (Bushman et al., 2016; Krueger, Bond, Rogers, & Hummer, 2004; Loeber et al., 2005; Luo, Florence, Quispe-Agnoli, Ouyang, & Crosby, 2011). In fact, people living in households at or below the federal poverty level experience more than twice as many nonfatal violent behaviors—such as assault, robbery, and rape—as people living in wealthier households; Harrell, Langton, Berzofsky, Couzens, & Smiley-McDonald, 2014). One study of a specific neighborhood in Boston with high poverty and high crime rates, coupled with low social trust, accounted for 10% of the city's homicides annually even though it only contained 2% of the city's population (Harding, 2010). Gun violence is particularly common in high-poverty areas. People living in predominantly poor urban neighborhoods are more likely to experience a gunshot wound injury, and 83% of gun homicides among teenagers occur in populations with high poverty levels (Males, 2015; Zebib, Stoler, & Zakrison, 2017).

Children living in poverty are also at more risk of experiencing neglect and abuse. Children living in poverty are far more likely to experience abusive head trauma, or shaken baby syndrome, which is the third leading cause of head injuries in young children and can lead to permanent disability and even death (Boop, Axente, Weatherford, & Klimo, 2016). They are also three times as likely to die from child abuse as those living in communities with low rates of poverty (Farrell et al., 2017). One explanation for this link between poverty and intentional violence is that families living in poverty experience higher levels of stress, which in turn may lead to more violent behavior in the home. In line with this view, rates of domestic violence are higher during major economic recessions (Schneider, Harknett, & McLanahan, 2016). Researchers believe that men who feel anxious and out of control over their jobs and financial security respond by exerting control/abuse over their romantic partners. Another explanation for the increased risk of experiencing violent behavior in high-poverty communities is the ready availability of guns, as will be discussed in the next section (Bushman et al., 2016).

Researchers in one study examined whether paid parental leave—which could reduce the stress of parenting an infant—reduced rates of child abuse (Klevens, Luo, Xu, Peterson, & Latzman, 2016). Deliberately inflicted head trauma—often caused by shaking the baby—is a leading cause of fatal child abuse and is most likely to occur when infants are between 9 and 20 weeks (a period in which crying is frequent). In this study, researchers compared rates of hospital admissions for abusive head injury in California, which introduced 12 weeks of paid family leave in 2004, to that in other states without this policy. Even after taking into account other factors linked with child abuse, such as unemployment and low educational attainment,

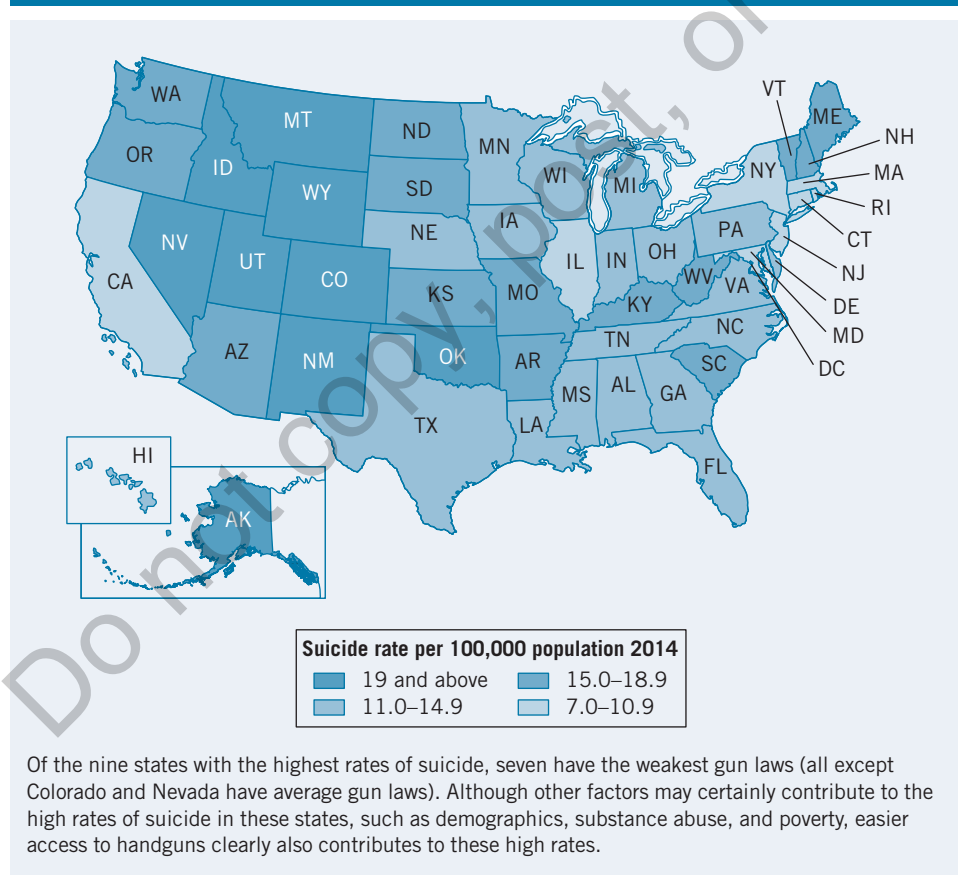
What You'll Learn
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instituting paid parental leave was associated with a decrease in admissions for head trauma for children under age two. In contrast, other states without this policy experienced an increase in such admissions during this same period. This is one example of how laws can substantially reduce the rate of injuries, as you'll learn more about in the final section of this chapter.

Access to Firearms

Another factor that contributes to both self-directed and other-directed violence is access to firearms (O'Donnell, 1995). As described previously, guns are used in nearly 50% of suicides and two thirds of homicides (Heron, 2016). People living in a house where a firearm is kept are almost five times as likely to die by suicide than people living in gun-free homes (Bailey et al., 1997; Kellerman, Rivara, & Rushford, 1992; Kellerman et al., 1993; Resnick et al., 1997). Having a gun available also increases the likelihood that a suicide attempt will be successful; suicide attempts with a gun are 140 times more likely to lead to death than those using any other method (Bostwick, Pabbati, Geske, & McKean, 2016). As shown in Figure 6.8, many of the states with the highest rates of suicides are those with the most ready access to guns.

Figure 6.8 Suicide Rates by State



Of the nine states with the highest rates of suicide, seven have the weakest gun laws (all except Colorado and Nevada have average gun laws). Although other factors may certainly contribute to the high rates of suicide in these states, such as demographics, substance abuse, and poverty, easier access to handguns clearly also contributes to these high rates.

Source: <https://www.economist.com/blogs/graphicdetail/2016/04/daily-chart-20>. Reprinted with the permission of Economist Newspaper Group.

This research examined the association between rates of household firearm ownership and suicide across the 50 states (Miller, Lippmann, Azrael, & Hemenway, 2007). The researchers used state-level survey data assessing household firearm ownership, mental illness, and alcohol/illicit substance use and dependence to examine the relationship between owning a gun and rates of firearm, nonfirearm, and overall suicide. The researchers took into account poverty, unemployment, mental illness, and drug and alcohol dependence and abuse. The findings revealed that residents of all ages and both sexes are more likely to die from both firearm suicides and overall suicides when they live in communities in which more households contain firearms. Interestingly, there was no association between rates of firearm ownership and rates of suicides not caused by firearms. This finding suggests that firearm ownership levels are strongly associated with higher rates of suicide at least in part because the readily availability of guns in a community increases the rate of successfully completed suicide.

Conclusions

Although this section has described various distinct risk factors for experiencing intentional injury, in reality many of these risk factors are correlated. For example, families living in poverty are more likely to engage in both child abuse and substance abuse, making it difficult to tell which of these factors is most strongly predictive of violent behavior (Bushman et al., 2016). Relatedly, people who are high on perfectionistic tendencies may be particularly impacted by living in communities that place a strong emphasis on high achievement; these two factors may therefore interact to influence suicidal ideation.

In other cases, it is difficult to determine whether the link between particular variables reflects nature or nurture. The finding that children and teenagers who experience the death of a parent to suicide are three times as likely to commit suicide themselves and twice as likely to be hospitalized for depression as those with living parents may be explained by social influence, and in particular modeling of parents' self-harm (Wilcox et al., 2010). However, this increased risk of suicide for children whose parents committed suicide may also be caused by genetics; in other words, perhaps a genetic predisposition to depression explains this link. Similarly, among people in one study who had attempted suicide, 46% reported growing up with one or both parents who abused alcohol, compared to 21% of those who didn't attempt suicide (Alonzo, Thompson, Stohl, & Hasin, 2014). Although this finding suggests that family alcohol abuse may increase the risk of suicide, it is also possible that a genetic link explains both parents' substance abuse (which may be an attempt to cope with depression) and people's own self-harm. In sum, this section has described risk factors that are associated with intentional injury but not the precise way in which such factors predict injury.

STRATEGIES FOR PREVENTING INJURIES

LO 6.5

Describe strategies for preventing injuries

Given the tremendous costs in terms of life expectancy, disability, and financial burden, health psychologists have focused on developing strategies for preventing injuries. These can include **active strategies**, which require people to engage in some type of action to prevent injuries from occurring or to decrease the harm resulting from such injuries. Wearing a helmet while bicycling, driving at a safe speed, and keeping windows locked are all examples of active strategies. Other approaches to injury prevention are passive—they do not require people to change their behavior or take any action but rather change people's environment. These **passive strategies** are often particularly effective in preventing injuries because they do not require continuing effort. Requiring all cars to have air bags, placing wood chips underneath

playground equipment, and installing smoke detectors are all examples of passive strategies. This section will describe three distinct approaches to injury prevention: providing education, creating legislation, and changing communities.

Providing Education

In some cases, people are simply not aware of how their behavior may increase the risk of injuries. Interestingly, mothers are less likely to take steps to prevent falls than to prevent other types of injuries, such as burns, drowning, and poisoning, perhaps due to a mistaken belief that fall injuries aren't particularly serious (Morrongiello & Kiriakou, 2004). Providing such education is therefore a relatively simple strategy for preventing injuries. For example, providing clinicians and staff members working with elderly people in home care, outpatient rehabilitation, or senior centers with information on preventing serious fall-related injuries led to a 9% lower rate of serious fall-related injuries and an 11% lower rate of use of medical services for fall-related injuries (Tinetti et al., 2008). Similarly, a Seattle campaign to promote helmet use employed widespread educational messages to raise parents' awareness about the importance of helmet use, provided a subsidy to reduce the cost of purchasing helmets, and recruited prominent sports figures from the Seattle Seahawks, the Seattle Mariners, and the University of Washington Huskies football team to describe how helmets are just a standard part of the sports uniform (Bergman, Rivara, Richards, & Rogers, 1990; Rivara et al., 1994). Helmet use increased from 5% to 23% following this campaign.

Skills Training

One of the clearest examples of the benefits of providing skills training is seen in preventing drowning deaths. Over 3,500 people drown from non-boating-related incidents each year in the United States, meaning about 10 deaths a day, and this is the leading cause of injury-related death among children ages 1 to 4 and the second leading cause of death among children ages 5 to 9 (Heron, 2016). Moreover, for every child who dies from drowning, five receive emergency department care for nonfatal submersion injuries, which can cause brain damage that results in long-term disabilities ranging from memory problems and learning disabilities to the permanent loss of basic functioning (i.e., permanent vegetative state). Black children and teenagers are more than five times as likely to drown as their White peers, largely because Black children are less likely to receive swimming lessons (Gilchrist & Parker, 2014). Although swimming instruction alone isn't adequate to prevent drowning, especially for very young children, learning basic water safety skills can help reduce its risk.

Education and skills training can also help reduce the risk of intentional injuries. For example, school-based programs that teach students about the problem of violence and its prevention as well as skills intended to reduce aggressive or violent behavior (e.g., emotional self-awareness, self-esteem, positive social skills, social problem solving, conflict resolution, teamwork) lead to lower rates of violent and aggressive behavior (Hahn et al., 2007). Skills training can also be useful in reducing the risk of violent behavior in the college population. For example, to test the effectiveness of an education program on sexual assault, first-year college women either were given brochures providing information on sexual assault (the control group) or completed a four-session program, which included information on how to assess risk from acquaintances as well as training in physical and verbal strategies for use in defending against sexual assault (Senn et al., 2015). As shown in Figure 6.9, women who received this program were less likely to experience either attempted or completed rape. Women who received this program also reported lower levels of nonconsensual sexual contact.

Figure 6.9 Data From Senn et al., 2015



Source: Data from Senn, Eliasziw, Barata, Thurston, Newby-Clark, Radtke, & Hobden (2015).

Given the substantial risk of deaths by suicide among young people, suicide prevention programs are another potentially effective strategy for reducing this type of behavior. After completing a school-based program that describes the warning signs of suicide, risk factors for suicide and depression, and steps to take if they or a friend feel suicidal, high school students are less likely to report they have considered suicide or have attempted suicide three months later (King, Strunk, & Sorter, 2011). For example, researchers in one study randomly assigned 2,100 high school students to participate in either a suicide intervention program, called Signs of Suicide, or a control condition (Aseltine & DeMartino, 2004). This program teaches adolescents that suicide is directly related to depression, which is a treatable mental illness, and describes the signs of depression for adolescents to recognize in themselves and others. Follow-up data three months later revealed that adolescents who participated in this program showed increases in knowledge and attitudes about depression and suicide and reported significantly lower rates of suicide attempts. Similarly, educating doctors about the signs of, and effective treatments for, depression can help prevention rates for completed suicides as well as suicide attempts (Mann et al., 2005).

Mass Media Approaches

Mass media campaigns can be a relatively cost-effective strategy for providing education about strategies for reducing both intentional and unintentional injuries. Several states, including Colorado, Kentucky, and New York, have implemented community-based programs to increase booster seat use among children ages four to eight, including community awareness campaigns and school-based programs, public service announcements, billboards, and booster seat distribution events and car seat checkpoints. Distracted-driving programs in

both California and Delaware that featured the phrase *Phone in One Hand. Ticket in the Other*, coupled with an increase in high-visibility police enforcement of distracted-driving laws, led to substantial decreases in handheld cell phone use in both states (Chaudhary, Connolly, Tison, Solomon, & Elliott, 2015).

Mass media campaigns have also been used to help educate people about the risks of suicide. One large-scale campaign in California, which included television and Internet advertising as well as billboards, was designed to increase awareness of the signs of suicide and give people information on how to help someone at risk of harming herself or himself (Ramchand, Roth, Acosta, & Eberhart, 2015). Researchers estimate that more than half of all California adults have been exposed to this campaign, and that people who have seen this message are more confident in knowing how to respond to someone in need of help.

Creating Legislation

Even when people are aware of the behaviors they should take to reduce the risk of injury, they do not always engage in safer behavior. The data showing that texting while driving increases the risk of car crashes, for example, is well known, and yet many people continue to engage in this behavior. Creating state or federal laws requiring or forbidding particular behaviors is therefore often necessary to increase people's motivation to change their behavior (Dannenberg, Gielen, Beilenson, Wilson, & Joffe, 1993; Heishman, Kozlowski, & Henningfield, 1997; Jacobson, Wasserman, & Anderson, 1997; Kaplan, Orleans, Perkins, & Pierce, 1995).

Motor Vehicle Laws

Because motor vehicle–related injuries are one of the leading causes of death, many laws attempt to reduce the risk of such injuries. These include laws that mandate particular speed limits, require seat belt use and the use of car seats for infants and children, and forbid driving while holding a phone. For example, many states require children to sit in car seats or booster seats while in the car and do not allow children under the age of 12 to ride in the front seat (Durbin, Chen, Smith, Elliott, & Winston, 2005). Similarly, given the concerns about driving accidents caused by “driving while calling,” some communities have now banned the use of handheld cell phones as well as texting while driving. Estimates are that requiring seat belts in New York State alone saved an estimated 220 lives in the first six months of the program and prevented over 7,000 injuries (Latimer & Lave, 1987).

Researchers in one study examined the impact of laws banning texting while driving on crash-related deaths (Ferdinand et al., 2014). Specifically, this study compared rates of deaths caused by car accidents between states without any texting-while-driving ban, states that allow officers to give a ticket only if the driver is pulled over for another offense (such as running a red light or speeding), and states that allow officers to stop a driver for texting while driving even if the officer doesn't have another reason for stopping the vehicle. The findings indicated that states that allow police officers to give people a ticket simply for texting—with no other reason—experienced a 3% reduction in fatal car accidents, meaning an average of 19 deaths per year prevented, compared to states that don't have such laws. These laws have been particularly effective in preventing deaths among young drivers, meaning those ages 15 to 21, who are presumably the least experienced drivers yet at the most risk of texting while driving; states experienced an 11% reduction in deaths of young drivers after instituting such a law.

Many laws about alcohol use, such as those preventing the sale and possession of alcohol by people under age 21, are designed to prevent drunk driving by teenagers. State laws regarding the possession and purchase of alcohol lead to an estimated 11.2% reduction in drunk driving (Fell, Fisher, Voas, Blackman, & Tippetts, 2008). Moreover, making it illegal to

What You'll Learn 6.5

use a false identification to purchase alcohol leads to fewer fatal crashes involving alcohol use in drivers under age 21.

Gun Control

Given the overwhelming link between the availability of guns and rates of homicide, laws restricting access to guns are a particularly effective way of reducing intentional injuries. Countries that pass laws restricting the ability to purchase and own guns show reductions in gun violence, including injuries, homicides, and suicides (Santaella-Tenorio, Cerdá, Villaveces, & Galea, 2016). Similarly, state laws requiring comprehensive background checks prior to purchasing a gun lead to reductions in both homicides and suicides (Sen & Panjamapirom, 2012). The laws that are most effective in reducing such deaths are those restricting people with restraining orders, mental illness, or fugitive status from purchasing a gun. In fact, estimates are that implementing three laws—background checks for all gun purchases, background checks to buy ammunition, and required identification of firearms through the bullets they fire—would lead to a substantial decrease in gun deaths (Kalesan, Mobily, Keiser, Fagan, & Galea, 2016).

Laws that restrict who can purchase a gun are particularly effective at reducing intimate partner violence. Specifically, states that adopt policies restricting people who have been convicted of engaging in domestic violence or have a restraining order due to domestic violence from acquiring a gun and violent acts show a 7% reduction in intimate partner homicide (Vigdor & Mercy, 2006). Cities that adopt similar laws show even greater declines—an average of 19%—in homicides committed by an intimate partner (Zeoli & Webster, 2010).

Laws that require people to get a license to own a gun may help reduce suicides in part because such requirements lead to a delay between wanting to buy a gun and being able to successfully purchase one. Suicidal ideation is often a result of a momentary impulse, which can pass over time; decreasing people's ability to immediately act on suicidal intentions is therefore extremely helpful, especially since suicide attempts using a gun are usually fatal (O'Connor & Nock, 2014). For example, one study found that a law in Connecticut requiring people to pass a background check before getting a license to buy a handgun led to a 15.4% reduction in suicide rates; similarly, Missouri's repeal of a law requiring a license to buy a handgun led to a 16.1% increase in suicide rates (Crifasi, Meyers, Vernick, & Webster, 2015).

Fire Prevention

Laws can also be used to prevent fire deaths, which cause over 3,000 deaths and over 15,000 injuries a year (Heron, 2016). Two thirds of deaths caused by home fires are a result of smoking that accidentally leads to fires on beds or upholstered furniture. Although many of these deaths could be prevented by smoke detectors, 60% of the deaths caused by fire occur in homes without working smoke detectors. Twenty percent of the deaths caused by fire occur as a result of home heating equipment, such as portable space heaters. In all of these cases, laws requiring working smoke detectors and/or sprinklers, or forbidding the use of portable space heaters, could prevent many fire-related injuries and deaths.

Helmet Use

Although wearing a helmet while biking is a very important strategy for reducing serious injuries, people are often reluctant to wear them. However, more than 1,300 people die each year from injuries sustained while riding a bicycle, often because of collisions with cars, and 90% of those people might have lived if they had worn a helmet (Sacks, Holmgreen, Smith, & Sosin, 1991). Helmet use also reduces the number of injuries to the face, head, and brain (Thompson, Nunn, Thompson, & Rivara, 1996; Thompson, Rivara, & Thompson, 1996).

The use of a helmet is particularly important for motorcycle riders. After a Michigan state law requiring helmets was repealed, fewer motorcyclists involved in crashes were wearing a helmet and trauma centers reported a 14% increase in head injuries seen in motorcyclists (Carter et al., 2017). Moreover, the type of head injuries also changed; the proportion with only a mild concussion fell 17% whereas the proportion with a skull fracture increased 38%. Similarly, head injury deaths increased by 66% following repeal of a Pennsylvania law requiring helmets for motorcycle riders (Mertz & Weiss, 2008). This study points out the truth in a common emergency room expression: “What do you call motorcycle riders without helmets? Organ donors.”

Changing Communities

Community-based efforts, which focus on changing the physical environment and/or social norms, can help reduce both intentional and unintentional rates of injury (Klassen, MacKay, Moher, Walker, & Jones, 2000). These approaches are designed to reach multiple people within the same geographic area, such as a school, neighborhood, or city.

Modifying the Physical Environment

Changes to the environment can lead to dramatic reductions in unintentional injuries. One large-scale program in New York City made safety changes to dangerous intersections to create safer environments for children to walk or bike to school (Muennig, Epstein, Li, & DiMaggio, 2014). These changes included installing speed bumps, creating designated biking lanes, and changing the timing of lights to give pedestrians more time to cross the street. Even simple changes in a community, such as changing the start time for high schools, can lead to dramatic reductions in injuries, as described in **Research in Action**.

Changes to the physical environment can also help reduce intentional injuries. For example, researchers in one recent study examined the outdoor conditions in which teenagers

RESEARCH IN ACTION

Why Later School Start Times Can Save Lives

Considerable research has shown that teenagers often get too little sleep, at least in part because a biological shift in circadian rhythms that occurs with puberty means they just don't feel tired until later at night, compared to adults (Carskadon, Wolfson, Acebo, Tzischinsky, & Seifer, 1998). Unfortunately, many high schools start before 8 a.m., meaning teenagers often arrive at school—and, even more important, may drive to school—feeling sleepy. To examine the effects of school start time on accidents, researchers compared rates of crashes in two different counties in Virginia; one had a high school start time of 8:45 a.m. and the other had a start time of 7:20 a.m. (Vorona et al.,

2014). Although there were no differences in rates of crashes among adult drivers in the two counties, the weekday crash rate for teenage drivers was about 29% higher in the county in which high school classes began at 7:20 a.m. than in the adjacent county in which high school classes started at 8:45 a.m. Moreover, further analyses evaluating the causes and types of crashes found that the county with the early school start time had a significantly higher rate of run-off-road crashes, which is a common feature of drowsy-driving accidents. These findings suggest that simply delaying school start times can reduce the rate of injuries, and presumably deaths, in teenage drivers.

were killed compared to neighborhoods in which fewer teenagers died (Culyba et al., 2016). As you can probably predict, neighborhoods in which teenagers were killed were much more likely to show neglected conditions, such as vacant lots, poor lighting, and fewer parks. These findings suggest that modifying certain aspects of the community may help reduce youth violence in urban areas. In line with this view, fixing abandoned buildings, such as replacing broken windows and doors and cleaning the facade, in urban areas leads to substantial decreases in gun assaults in the surrounding areas (Kondo, Keene, Hohl, MacDonald, & Branas, 2015). Similarly, creating green space on vacant lots, which are often found in low-income areas, makes neighborhood residents feel safer and may even reduce assaults (Garvin, Cannuscio, & Branas, 2013). Although the precise mechanisms that explain this association aren't clear, researchers believe vacant lots overgrown with vegetation and trash may make it easier for people to hide illegal guns and engage in other types of illegal activities, such as drug use. Transforming these lots into green spaces by planting grass and trees and removing trash may make it more difficult for people to engage in such activities, which in turn reduces rates of crime and violence.

Changing the physical environment also helps reduce rates of self-directed violence. For example, installing barriers and safety nets in so-called suicide hot spots (in which many people attempt suicide) can reduce deaths in these locations by as much as 90% (Pirkis et al., 2015). One large-scale study compared rates of suicide before and after the institution of various suicide-prevention measures—such as placing signs and crisis telephones, increasing suicide patrols, and adding safety nets—at known hot spots, such as bridges and tall buildings, around the world. Deaths dropped from an average of 5.8 suicides each year before these measures were added to an average of 2.4 deaths per year afterward. Although initially public health researchers feared that people with suicidal intent would simply choose other means by which to harm themselves, installing barriers on hot spot locations does not seem to lead to increases in suicides in other places or by other means (e.g., Law, Svetcic, & De Leo, 2014).

Community-based efforts that change the physical environment as well as provide education on injury prevention are particularly effective. For example, the Safe Kids/Healthy Neighborhood Injury Prevention Program in Harlem, New York, targeted numerous aspects of the community, including renovating playgrounds, involving children in safe and fun activities (e.g., dance, arts, sports), offering classes on injury and violence prevention, and providing safety equipment (e.g., bicycle helmets) (Davidson et al., 1994). Rates of injuries declined 44% following the intervention, demonstrating the power of community-based efforts in improving physical health.

Changing the physical environment can also help reduce unintentional injuries in the home. Falls in the home can be prevented through installing grab bars in bathrooms, using window locks and stair gates, and adding brighter outdoor lighting on stairs. Changing the physical environment is especially important for families with a pool, since many drownings of young children occur in home swimming pools (Centers for Disease Control and Prevention, 2016h). In fact, using a four-sided fence to completely enclose a pool compared to three-sided property-line fencing (in which children can still gain access to the pool from inside a house) leads to an 83% reduction in the risk of childhood drowning (Thompson & Rivara, 2000).



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In April 2017, construction started on a stainless-steel net under the Golden Gate Bridge in an attempt to prevent the frequent suicide attempts that take place on this bridge each year.

Modifying Social Norms

Other programs have focused on changing norms in a given community. One of the most successful programs to reduce gang-related violence in inner cities was started in Boston in 1995 (Braga, Kennedy, Waring, & Piehl, 2001). This program, called Operation Ceasefire, was coordinated by police officers, community groups, and researchers to both reduce the availability of guns in the community and to strongly incentivize gang members to avoid carrying guns. Gang members were warned of serious penalties for carrying guns, such as two-year prison sentences for simply carrying a weapon, coupled with increased police presence in the community. However, gang members were also given appealing alternatives to crime as a job, such as free access to job placement and counseling. This program led to a 63% reduction in monthly youth homicides as well as a 44% decrease in the monthly number of youth gun assaults. These findings provide powerful evidence that broad community efforts can successfully reduce interpersonal violence, even in very at-risk communities.

Communitywide programs designed to prevent violence and homicides in inner cities have also been effective in other communities. For example, the Trauma Response Team, a program started in Syracuse, New York, involves collaboration between the police department, hospitals, and community members to respond to shootings in high-crime neighborhoods (Jennings-Bey et al., 2015). This team responds immediately after a shooting to try to deescalate violence that could occur in retaliation. First, the team provides support—at the scene of the crime and at the hospital—to family members and friends of the victim. Second, the team focuses on where subsequent feuds between rival gangs could happen and sets up hot dog grill stands at those locations. These efforts have led to a 20% reduction in gang-related homicides. Similar programs that connect community members, hospital workers, and police officers have led to reductions in violence in other communities, including New Orleans (McVey et al., 2014), Baltimore (Webster, Whitehill, Vernick, & Curriero, 2013), and Chicago (Skogan, Hartnett, Bump, & Dubois, 2008).

Other communitywide programs have been implemented to reduce suicides. For example, after the town of Somerville, Massachusetts, experienced a number of teenage deaths due to both suicide and unintentional opiate overdoses, a broad effort was implemented in an attempt to prevent further deaths (Hacker, Collins, Gross-Young, Almeida, & Burke, 2008). This effort included raising awareness about the dangers of substance abuse, increasing the availability of mental health services, developing additional recreational opportunities for teenagers, and enhancing awareness of risk factors for both suicide and substance abuse. Following the implementation of these efforts, rates of suicides as well as hospitalizations for both self-injury and drug overdose declined, suggesting that broad-scale community efforts can be quite effective.

Table 6.4 Information YOU Can Use

- Protect yourself from car accidents, which is the leading cause of injury-related death for adolescents and young adults. Make sure to wear a seat belt, obey the speed limit, and turn off your phone before driving. Most important, don't ever drive after drinking or be a passenger in a car with a driver who has consumed alcohol.
- Given the link between owning a firearm and both homicides and suicides, don't have a gun in your house.
- Suicide is a common cause of death for adolescents and young adults, and thus suicidal thoughts need to be taken very seriously. If you or someone you know is having thoughts about killing themselves, talk to an adult you trust—a teacher, parent, doctor, or religious leader—immediately.

(Continued)

Table 6.4 (Continued)

- Drownings in both pools and natural bodies of water are common causes of death and injury, so make sure to protect yourself. Learn how to swim and obey all water-safety guidelines, including wearing a life jacket at all times when on a boat and avoiding swimming after alcohol use.
- Fires at home cause many injuries and deaths each year but are highly preventable. Try not to smoke inside your home, and if you do smoke in your home, never smoke in bed or leave burning cigarettes unattended. Make sure to install smoke alarms and test them monthly.

SUMMARY

Understanding Injury

- Unintentional injuries refer to injuries in which the person who caused the injury did not mean for it to happen. Many unintentional injuries are caused by car accidents, fires, drowning, falls, and poisoning. Other types of injuries are described as intentional injuries, meaning the person who caused the injury meant for it to happen. Intentional injuries are caused by violent behavior, such as suicide, homicide, or sexual assault.
- For people ages 1 to 44, injuries are the leading cause of death, and many additional people experience nonfatal injuries. Injuries exert a huge cost on society, not only in terms of physical health and life expectancy but also in terms of financial costs, including both the direct costs of medical treatment and indirect costs due to lost work productivity.

Risk of Injury Across the Lifespan

- Childhood in general is a time of relatively low mortality. However, the leading cause of death for children from ages 1 to 14 is unintentional injury, and the fourth leading cause of death, following cancer and heart disease, is homicide. The leading causes of injury-related deaths during childhood vary by age but include suffocation, drowning, car accidents, fire/burns, and, for older children, suicide and homicide. Children may also experience nonfatal injuries, which can have lasting consequences.
- Injury is also one of the leading causes of death for adolescents and young adults (ages 15 to 24); 73% of all deaths in adolescents and young adults are caused by some type of injury. The leading causes of death for people in this age group are accidents, suicides, and

homicides. The leading causes of unintentional injuries are car accidents and poisoning.

- Injuries cause about 20% of all deaths in adulthood, but the impact of injuries on fatalities changes dramatically with age. Unintentional injuries are the leading cause of death in adults ages 25 to 44 and the third leading cause of death in adults ages 45 to 64 but cause very few deaths in those 65 and older. The leading causes of death for adults are poisoning, car accidents, homicides, suicides, and, for older adults, falls.

Understanding Unintentional Injury

- The three leading causes of death caused by unintentional injuries are poisoning, car accidents, and falls. Poisoning is the leading cause of unintentional injury-related death in the United States. The most common type of poisoning in adults is the use of illegal drugs, such as cocaine or heroin, or the use of prescription drugs, such as opiates. In children, poisoning often occurs when someone accidentally consumes a drug. Poisoning can also cause nonfatal injuries. Car accidents are the largest cause of unintentional injury deaths in people ages 5 to 24 and cause other types of lasting but not fatal injuries. Many of these deaths are caused by behavioral choices, such as drinking and driving, speeding, distracted driving, failing to wear a seat belt, and not having children in properly installed car seats and booster seats. The third leading cause of unintentional injury-related death in the United States is falls. Nonfatal falls cause many serious injuries, such as broken bones and head injuries. Falls are the leading cause of nonfatal injuries for all children ages 0 to 19 and are the leading cause of injury-related deaths in older adults.

- Many of these injuries are caused by specific predictable (and thus preventable) causes. People with particular personality traits, including hostility, sensation-seeking, and impulsivity, show riskier behaviors, which increases the likelihood of accidents. Other personality traits, such as conscientiousness, generally—but not always—predict safer behavior, and thus a lower likelihood of injury. Substance use is another behavioral choice that increases the likelihood of many different types of injury. The physiological effects of alcohol impair people's ability to process information and consider the long-term consequences of their behavior, reduce muscle coordination, and interfere with vision and perception. Social factors exert a strong influence on the likelihood of injury and are a particularly strong influence during adolescence. Parents can play a valuable role in decreasing risky behavior that is linked to injuries. Although people who are living in poverty are at greater risk of experiencing an injury, the mechanisms explaining this relationship are not clear. Possible explanations include exposure to less safe physical environments, a lack of family resources to provide safety features and adequate supervision, lower levels of maternal education, more stressful life events, and increased rates of substance abuse.

Understanding Intentional Injury

- Many deaths, and even more injuries, are caused each year by violent behavior. Suicide is the 10th overall leading cause of death in the United States, and many more people attempt suicide or consider attempting suicide. Self-directed violence also includes nonsuicidal self-injury, such as cutting, scratching, or burning the skin in an attempt to harm oneself. Intentional injuries and deaths can also be caused by other-directed violence, such as homicide, assault, or sexual violence. Although we often think about violent behavior as occurring between strangers, violence occurs far too often between people in close relationships. This includes intimate partner violence as well as child abuse and neglect.
- A number of factors influence a person's risk for experiencing different types of violence. Individual-difference factors that are linked with violent

behavior include psychological disorder (e.g., major depressive disorder or bipolar disorder), impulsivity, and perfectionism. Substance abuse is linked with an increased likelihood of committing all types of violent behavior, including suicide, homicide, assault, intimate partner violence, and child abuse and neglect. Considerable research points to the role of social influence in leading to both self-directed and other-directed violence. Suicide contagion describes how exposure to suicide or suicidal behaviors within one's family, one's peer group, or through the media can result in an increase in suicide attempts. Social contagion also helps predict other-directed violence. People living in poverty are at increased risk of experiencing intentional injuries, including assault, homicide, and child abuse and neglect. Finally, another factor that contributes to both self-directed and other-directed violence is access to firearms. However, many of these factors are interrelated, and it is difficult to disentangle the precise risks associated with each.

Strategies for Preventing Injuries

- Providing education about strategies for reducing the risk of injury is a relatively simple approach that can be quite effective. Teaching people about their risk of injury, coupled with skills to reduce their risk of injury, can help prevent both unintentional and intentional injuries. Mass media campaigns can be a relatively cost-effective strategy for providing such education.
- Creating state or federal laws requiring or forbidding particular behaviors is often necessary to increase people's motivation to change their behavior. The adoption of such laws has led to reductions in deaths caused by car accidents, guns, fires, and bicycle/motorcycle accidents.
- Community-based efforts, which focus on changing the physical environment and/or social norms, can help reduce both intentional and unintentional rates of injury. Changes to the environment can lead to dramatic reductions in injury rates, including reducing rates of pedestrian and car accidents as well as homicides, assaults, and suicides. Similarly, programs that focus on changing norms in a given community have led to reductions in homicides, assaults, and suicides.

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