CHAPTER
5

Health-Compromising Behaviours

LEARNING OBJECTIVES

After reading this chapter, students will be able to:

[LO1] Identify the characteristics of health-compromising behaviours

[LO2] Describe and define substance dependence

[LO3] Understand how alcoholism and problem drinking compromise health

[LO4] Explain how smoking is harmful for health and what factors influence smoking

[LO5] Describe eating disorders

Several decades ago, my father went for his annual physical and his doctor told him, as the doctor did each year, that he had to stop smoking. As usual, my father told his doctor that he would stop when he was ready. He had already tried several times and had been unsuccessful. My father had begun smoking at age 14, long before the health risks of smoking were known, and it was now an integrated part of his lifestyle, which included a couple of cocktails before a dinner high in fat and cholesterol and a hectic life that provided few opportunities for regular exercise. Smoking was part of who he was. His doctor then said, "Let me put it this way. If you expect to see your daughter graduate from university, stop smoking now." That warning did the trick. My father threw his cigarettes in the wastebasket and never had another one. Over the years, as he read more about health, he began to change his lifestyle in other ways. He began to swim regularly for exercise, and he pared down his diet to one of mostly fish, chicken, vegetables, fruit, and cereal. Despite the fact that he once had many of the risk factors for early heart disease, he lived to age 83.

In this chapter, we turn our attention to health-compromising behaviours—behaviours practised by people that undermine or harm their current or future health. My father's problems with stopping smoking illustrate several important points about these behaviours. Many health-compromising behaviours are habitual, and several, including smoking, are addictive, making them very difficult habits to break. On the other hand, with proper incentive and help, even the most intractable health habit can be modified. When a person succeeds in changing a health behaviour for the better, often he or she will make other lifestyle changes in the direction of a healthier way of living. The end result is that risk declines, and a disease-free middle and old age becomes a possibility.

—*AUTHOR SHELLEY TAYLOR*

L01 WHAT ARE THE CHARACTERISTICS OF HEALTH-COMPROMISING BEHAVIOURS?

Many health-compromising behaviours share several additional important characteristics. First, there is a window of vulnerability in adolescence. Drinking to excess, smoking, illicit drug use, over-controlled eating, unsafe sex, and risk-taking behaviour that can lead to accidents or early death all begin in early adolescence and sometimes cluster together as part of a problem behaviour syndrome (Lam, Stewart, & Ho, 2001; Public Health Agency of Canada, 2004b).

This is not to suggest that all health-compromising behaviours evolve and are firmly implanted during adolescence. Several health problems, such as obesity, begin early in childhood and others, such as alcoholism, may be special risks for older adults. These exceptions notwithstanding, there is an unnerving similarity in the factors that elicit and maintain many of these health-compromising behaviours.

Many of these behaviours are heavily tied to the peer culture, as children learn from and imitate the peers they like and admire (Gaughan, 2006). Wanting to be attractive to others becomes very important in adolescence, and this factor is significant in the development of eating disorders, alcohol consumption, tobacco and drug use, tanning, unsafe sexual encounters, and vulnerability to injury, among other behaviours (for example, Shadel, Niaura, & Abrams, 2004).

Several health-compromising behaviours are also intimately bound up in the self-presentation process—that is, in the adolescent's or young adult's efforts to appear sophisticated, cool, tough, or savvy in his or her social environment (Evans, Powers, Hersey, & Renaud, 2006). The image conveyed by these behaviours, then, is another shared characteristic that must be considered in their modification.

A third similarity is that many of these behaviours are pleasurable, enhancing the adolescent's ability to cope with stressful situations, and some represent thrill-seeking, which can be rewarding in its own right. However, each of these behaviours is also highly dangerous. Each has been tied to at least one major cause of death in this country, and several, especially smoking, are risk factors for more than one major chronic disease.

Fourth, development of all these behaviours occurs gradually, as the individual is exposed to and becomes susceptible to the behaviour, experiments with it, and later engages in its regular use (Wills, Pierce, & Evans, 1996). As such, these health-compromising behaviours are not acquired all at once, but through a process that may make different interventions important at the different stages of vulnerability, experimentation, and regular use.

Fifth, substance abuse of all kinds, whether cigarettes, alcohol, or drugs, are predicted by some of the same factors. Those adolescents who get involved in such risky behaviours often have high levels of conflict with their parents and poor self-control, suggesting that these behaviours may function in part as coping mechanisms to manage a stressful life (M. L. Cooper, Wood,

Orcutt, & Albino, 2003; Wills, Gibbons, Gerrard, & Brody, 2000).

Common to the abuse of many substances, including cigarettes, alcohol, and marijuana, is the profile of those who use these substances. Adolescents with a penchant for deviant behaviour, with low self-esteem, and with problematic family relationships often show higher levels of these behaviours (Duncan, Duncan, Strycker, & Chaumeton, 2002; Wagner et al., 2010). Combining long hours of employment with school increases the risk of alcohol, cigarette, and marijuana abuse among adolescents, although this may be truer for non-minority rather than minority students (M. K. Johnson, 2004). Those who abuse substances typically do poorly in school. Family problems, deviance, and low self-esteem appear to explain this relationship (Andrews & Duncan, 1997). Likewise, difficult temperament, poor self-control, and deviance-prone attitudes are related to peer and adolescent substance use of tobacco, alcohol, and marijuana (Repetti, Taylor, & Seeman, 2002).

Finally, problem behaviours are related to the larger social structure in which they occur (Latkin, Williams, Wang, & Curry, 2005). Most of these problem behaviours are more common in lower social class individuals, and are associated with attitudes toward health (e.g., less health consciousness, beliefs that health is a matter of chance) that may develop from exposure to hardships and poor health (Wardle & Steptoe, 2003). In some cases, these social class differences occur because of greater exposure to the problem behaviour and, in other cases, because lower social class provides more stressful circumstances with which the adolescent may need to cope. Practice of these health-compromising behaviours is thought to be one reason that social class is so strongly related to most causes of disease and death (Denton, Prus, & Walter, 2004).

In this chapter, we are especially concerned with two of the most common and commonly treated health-compromising behaviours—alcohol abuse and smoking. Many of the points raised, however, will be relevant to other health-compromising behaviours, such as illicit drug use, which we will examine briefly. In particular, many of these health-compromising behaviours involve addiction.

(L02) WHAT IS SUBSTANCE DEPENDENCE?

A person is said to be dependent on a substance when he or she has repeatedly self-administered it, resulting in tolerance, withdrawal, and compulsive behaviour (American Psychiatric Association, 2000). Substance dependence can include **physical dependence,** the state that occurs when the body has adjusted to the substance

and incorporates the use of that substance into the normal functioning of the body's tissues. Physical dependence often involves **tolerance,** the process by which the body increasingly adapts to the use of a substance, requiring larger and larger doses of it to obtain the same effects, eventually reaching a plateau. **Craving** is a strong desire to engage in a behaviour or consume a substance. It seems to result from physical dependence and from a conditioning process: As the substance is paired with many environmental cues, the presence of those cues triggers an intense desire for the substance. **Addiction** occurs when a person has become physically or psychologically dependent on a substance following use over time. **Withdrawal** refers to the unpleasant symptoms, both physical and psychological, that people experience when they stop using a substance on which they have become dependent. Although the symptoms vary, they include anxiety, irritability, intense cravings for the substance, nausea, headaches, shaking, and hallucinations. All these characteristics are common to substance abuse involving addiction, which includes smoking, alcohol consumption, and drug abuse.

The costs of substance abuse in Canada are substantial. The burden to health care resources, law enforcement, and loss of productivity at work and home due to death and disability from substance abuse was $39.8 billion in 2002. Smoking accounted for most of this cost (43 percent), alcohol for about 37 percent, and the remaining 20 percent of the social costs of substance abuse was accounted for by illegal drug use (Rehm et al., 2006).

Although there are different approaches to treating substance dependence, one approach that has been increasingly used as an intervention strategy for dealing with substance abuse is **harm reduction.** Described as a public health response to the substance abuse problem, harm reduction is defined as an "approach that focuses on the risks and consequences of substance use rather than on the use itself" (Poulin, 2006). In Canada, harm reduction has been adopted as the model guiding our national drug strategy, and has similarly been adopted as a treatment strategy in other countries including the United Kingdom, Australia, and Germany (Ogborne, Carver, & Wiebe, 2001). At the heart of harm reduction is the philosophy that completely eliminating substance use in society is an unrealistic goal, and therefore it is preferable to focus on reducing substance use to help minimize the social and physical harm associated with substance abuse. From a practical standpoint, harm reduction may also be an effective strategy to initially promote safe substance use before moving to interventions directed at complete cessation (Health

Canada, 2005a). Accordingly, use of substances is not judged as something that is good or bad, and strategies like abstinence that are promoted by organization such as Alcoholics Anonymous (see the Focus on Social Issues box, "A Profile of Alcoholics Anonymous," on page 129) are viewed as only one of many possible strategies for dealing with substance abuse (Poulin, 2006).

Harm reduction is most often implemented at the community level with community-based programs that focus on facilitating safe use of substances (Health Canada, 2005a). Methadone maintenance and needle exchange programs are examples of community-based harm-reduction strategies for dealing with illicit injection drug use (e.g., heroin use). Injection drug use is associated with a host of social and health problems including increased crime and the spread of HIV/AIDS, tuberculosis, and infectious hepatitis. Needle sharing is often the main route for the spread of these infectious diseases. Needle exchange programs recognize that not all injection drug users want to or are able to stop using drugs and accordingly offer the means (sterile needles) and knowledge (education about how to prevent the spread of infection) for them to change the behaviours that put them most at risk for contracting and spreading infections (Riley, 1993).

Because injection drug use is especially problematic in large cities, harm-reduction initiatives have been implemented in several Canadian urban centres, including Toronto, Montreal, Ottawa, and Vancouver. One harm-reduction strategy (Insite) was launched in 2003 in Vancouver's downtown east side, where the concentration of injection drug users was particularly high, and rates of HIV, hepatitis, and death from drug overdose were soaring. Based on a harm-reduction philosophy, Insite was Canada's first safe-injection site, offering users a disposable injection kit and other sterile drug-use tools to prepare and inject under the supervision of medical staff. Initial response to this intervention program was mixed as many believed that it would convey the wrong message and actually increase injection drug use. However, initial evaluations of the effectiveness of Insite are promising. People who use this facility are 70 percent less likely to share needles than those who do not visit Insite or do so infrequently, and needle-sharing rates in the community have also decreased since Insite was opened (Vancouver Coastal Health, n.d.).

Building on the success of the Insite program, Vancouver Coastal Health plans to launch a new pilot program for distributing clean, unused crack pipes to drug users by the end of 2011. This new program will be an upgrade to the previous program, which only distributed the pipe mouthpieces in an effort to reduce the spread of HIV and hepatitis, which are common among crack cocaine smokers.

Although injection drug use is perhaps one of the more harmful health-compromising behaviours, concerns are increasing about other types of substance abuse, such as marijuana use, which is now the most common illegal drug used by young people in the world (see the Focus on Social Issues box, "Toker Nation?").
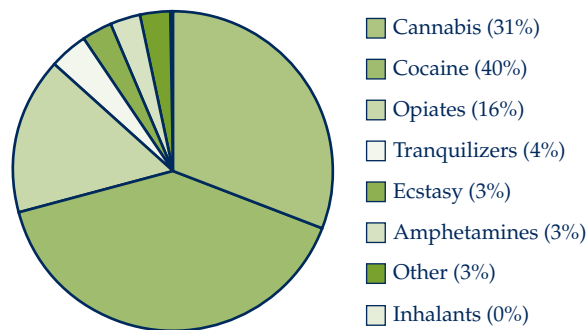
Illicit Drug Use

According to the United Nations Office on Drugs and Crime, the use of illicit drugs is a global problem, with an estimated 155 to 250 million people worldwide having used an illicit drug in 2008 (United Nations, 2010). In Canada, approximately 12 percent had used at least one form of illicit drug in 2008 (Health Canada, 2009a). There are four main classes of illicit drugs that are of particular concern because of their addictive and harmful properties: opiates (e.g., heroin), cocaine, cannabis (e.g., marijuana), and the amphetamine type stimulants (ATS; e.g., ecstasy). Like alcohol, drugs are considered to be **psychoactive substances,** that is they impact cognitive and affective processes and alter the way a person behaves when ingested (World Health Organization, 2010).

In addition to these four drug types, use of psychoactive prescription drugs has become a growing concern worldwide (United Nations, 2010) and in Canada (Haydon, Rehm, Fischer, Monga, & Adlaf, 2005), as they become diverted into the illicit drug market. Non-medical use of prescription drugs including sedatives and tranquilizers (such as valium), opioid pain killers (such as Oxycontin and Demorol), and stimulants (such as Ritalin) is on the increase among young adults and youth. For example, a recent survey of Ontario students aged 12 to 19 found that 21 percent had used prescription drugs in the past year, with the majority obtaining the drugs from home (Brands, Paglia-Boak, Sproule, Leslie, & Adlaf, 2010). Not surprisingly, students who were frequent users of alcohol, other illicit drugs, and daily smokers were more likely to use prescription drugs without medical supervision.

What are the consequences of illicit drug use? In addition to legal and economic problems, use of illicit drugs and prescription drugs taken without medical guidance can result in a variety of physical, mental and social problems. Physical problems can include lung damage from smoking marijuana, damage to the inside of the nose from sniffing cocaine, and risk for HIV and other infections from use of injection drugs. Moreover, stimulant drugs such as cocaine, ecstasy and metamphetamines can

124   Part Two   Health Behaviour and Primary Prevention

FIGURE 5.1 | Primary Drugs of Abuse Among People Treated For Drug Problems, Canada 2008
(*Source:* Adapted from United Nations Office on Drugs and Crime (UNODC), World Drug Report 2011 (United Nations publication, Sales No.E.10.XI.13), Retrieved July 6, 2011 from www.unodc.org/unodc/en/data-and-analysis/WDR-2011.htm

Cannabis (31%)
Cocaine (40%)
Opiates (16%)
Tranquilizers (4%)
Ecstasy (3%)
Amphetamines (3%)
Other (3%)
Inhalants (0%)

increase heart rate and blood pressure to a degree that increases risk for strokes and even death. Even prescription drugs when used under medical guidance can have unpleasant physical side effects such as digestive upset and headaches. When they are used without guidance or in combination with other drugs the risk for these side effects increases considerably. As with any substance, continued use can lead to physical dependence and addiction. Mental health problems include short-term anxiety and confusion from having a "bad trip," and long-term memory and personality changes if drug use becomes habitual. Finally, drugs can lower inhibitions and affect judgment resulting in decisions and behaviours that might normally not be undertaken. Risky sexual behaviours, driving while impaired, and engaging in other risky behaviours are more likely when someone is under the influence of drugs (Health Canada, 2009a). Thankfully, there are treatment programs available to deal with the spectrum of problems that result from using illicit drugs (see Figure 5.1).

L03   HOW DO ALCOHOLISM AND PROBLEM DRINKING COMPROMISE HEALTH?

Scope of the Problem

Alcohol is responsible for more than 8,000 deaths each year (Rehm et al., 2006), making it one of the leading causes of preventable death after tobacco and improper diet and exercise. Nearly 20 percent of Canadians drink at levels that exceed government recommendations (Adlaf, Begin, & Sawka, 2005). Originally characterized as a social ill, alcoholism was officially recognized as a disease by the American Medical Association in 1957.

As a health issue, alcohol consumption has been linked to a number of disorders, including high blood pressure, stroke, cirrhosis of the liver, some forms of cancer, and fetal alcohol syndrome—a condition of retardation and physiological abnormalities that arises in the offspring of heavy-drinking mothers (Higgins-Biddle, Babor, Mullahyl, Daniels, & McRee, 1997). Alcoholics can show major sleep disorders; disordered sleep may contribute to immune alterations that elevate risk for infection among alcoholics (Redwine, Dang, Hall, & Irwin, 2003). Excessive drinking also accounts for substantial cognitive impairments, many of them irreversible. Almost 1,000 road fatalities are attributed to drinking and driving annually, and approximately 80,000 incidents of impaired driving are reported annually. Although the rate of impaired driving offences in Canada has been slowly declining over the past decade, (Collin, 2006), there have been three consecutive inceases in the number of impaired driving offences in Canada since 2007 (Dauvergne & Turner, 2010).

Economically, alcohol abuse is estimated to cost Canada $14.6 billion, which includes approximately $7 billion in lost productivity, $3.3 billion in treatment costs for alcohol misuse and related disorders, and almost $1 billion in other costs, including motor vehicle accidents, fire, and crime (Rehm et al., 2006). This translates into a cost of $463 per every living Canadian per year to cover the economic burden of alcohol abuse. In addition to the direct costs of alcoholism through illness, accidents, and economic costs, alcohol abuse contributes to other health problems. For example, alcohol disinhibits aggression, so a substantial percentage of homicides, suicides, and assaults occur under the influence of alcohol. Alcohol can also facilitate other risky behaviours such as more impulsive sexual behaviour (Bryan, Ray, & Cooper, 2007) and poorer skills for negotiating condom use, relative to those who were more sober (Anstey et al., 2006).

Overall, though, it has been difficult to define the scope of alcoholism. Many problem drinkers keep their problem successfully hidden, at least for a time. By drinking at particular times of day or at particular places and by restricting contact with other people during these times, the alcoholic may be able

FOCUS ON SOCIAL ISSUES

BOX 5.1

Toker Nation?

According to the 2007 World Drug Report by the United Nations Office on Drugs and Crime, Canada leads the industrialized world in marijuana use. Approximately 16.8 percent of the Canadian population between the ages of 15 and 64 reported to have consumed marijuana during 2006. Compared to rates in Australia and New Zealand (13.4), the United States (12.6 percent), Britain (8.7 percent), France (8.6 percent), Germany (6.9 percent), and the Netherlands (6.1 percent), where marijuana use is decriminalized, Canada has the unfortunate distinction of being number one when it comes using this illegal drug. Although the proportion of Canadians who consume marijuana dropped to 13.6 in 2008, Canada remains in first place for consumption among industrialized countries according to the 2009 World Drug Report.

Besides being somewhat embarrassing internationally, the use of marijuana by a large number of Canadians raises concerns about the health and social issues associated with its use, especially among young adults. The proportion of adolescents who use marijuana is much higher than the national rates found in the World Drug Report. A Canadian survey suggests that 40 percent of girls and 50 percent of boys in grade 10 have tried marijuana, and another one-quarter of girls and one-third of boys use marijuana three or more times a year. Similar to other types of substance use, marijuana use is related to a variety of health-compromising and risky health behaviours, as well as other social and psychological issues. Marijuana use among adolescents is associated with smoking, frequent and excessive drinking, having unprotected sex, and other risky sexual behaviours. In addition, those who "toke up" are more likely to be dissatisfied with life, have negative attitudes towards school, and have poor relationships with their parents (Public Health Agency of Canada, 2004b).

Marijuana use appears to increase after high school also, with nearly 70 percent of those between 18 and 24 reporting having tried marijuana (Patton & Adlaf, 2005).

Why is marijuana so popular among adolescents and young adults? Some researchers suggest that its acceptance as a social drug among adults (and therefore its greater use and availability) has contributed to the perception that marijuana is a safe recreational drug (Tonkin, 2002). Indeed, marijuana is the most commonly used illegal substance in Canada. However, the misperceptions about its safe use are not well founded. In fact, marijuana contains more tar than cigarettes, and has higher levels of some cancer-causing chemicals than that found in tobacco smoke. In addition, long-term use can lead to cognitive impairments and early development of schizophrenia among those at high risk. And, like cigarettes and other substances, marijuana is addictive (Centre for Addiction and Mental Health, 2007).

Source: CBC News, July 6, 2007.

to drink without noticeable disruption in his or her daily activities.

What Are Alcoholism and Problem Drinking?

Exactly what constitutes alcoholism and problem drinking is fuzzy. **Problem drinking** and **alcoholism** encompass a variety of specific patterns (Adlaf, Demers, & Gilksman, 2005). The term "alcoholic" is usually reserved for someone who is physically addicted to alcohol. Alcoholics show withdrawal symptoms when they attempt to stop drinking, they have a high tolerance for alcohol, and they have little ability to control their drinking. Problem drinkers may not have these symptoms, but they may have substantial social, psychological, and medical problems resulting from alcohol.

Problem drinking and alcoholism have been defined by a variety of specific behaviours, which range from the milder ones associated with problem drinking to the severe ones associated with alcoholism. These patterns include the need for daily use of alcohol, the inability to cut down on drinking, repeated efforts to control drinking through temporary abstinence or restriction of alcohol to certain times of the day, binge drinking, occasional consumptions of large quantities of alcohol, loss of memory while intoxicated, continued drinking despite known health problems, and drinking of nonbeverage alcohol.

Origins of Alcoholism and Problem Drinking

The origins of alcoholism and problem drinking are complex. Based on twin studies and on the frequency of alcoholism in sons of alcoholic fathers, genetic factors appear to be implicated in 50 percent of the vulnerabilities that lead to alcoholism (Schuckit, 2009). Men have traditionally been at greater risk for alcoholism than women (Kalaydjian et al., 2009), although with changing norms, younger women and women employed outside the home are beginning to catch up (D. R. Williams, 2002). Socio-demographic factors, such as low income, also predict alcoholism, although only modestly.

Drinking and Stress   Drinking clearly occurs, in part, as an effort to buffer the impact of stress (Mulia, Schmidt, Bond, Jacobs, & Korcha, 2008; Sayette et al., 2007). Many people begin drinking to enhance positive emotions and reduce negative ones (Repetto, Caldwell, & Zimmerman, 2005). People who are experiencing a lot of negative life events, chronic stressors, and little social support are more likely to become problem drinkers than are people without these problems (Mulia, Schmidt, Bond, Jacobs, & Korcha, 2008; Sadava & Pak, 1994). For example, alcohol abuse rises among people who have been laid off from their jobs (Catalano, Dooley, Wilson, & Hough, 1993). Alienation from work, low job autonomy, little use of one's abilities, and lack of participation in decision making at work are associated with heavy drinking (E. S. Greenberg & Grunberg, 1995). Financial strain, especially to the degree that it produces depression, leads to drinking in order to cope (Mulia, Schmidt, Bond, Jacobs, & Korcha, 2008).

Social Origins of Drinking   Alcoholism is tied to the social and cultural environment of the drinker. Many people who eventually become problem drinkers or alcoholics learn early in life to associate drinking with pleasant social occasions. They may develop a social life centred on drinking, such as going to bars or attending parties where alcohol consumption is prominent. In contrast, those people who marry and become parents reduce their risk of developing alcohol-related disorders in part because marriage predicts decreased involvement in social activities, which in turn leads to decreased heavy drinking. (Lee, Chassin, & MacKinnon, 2010).

There appear to be two windows of vulnerability for alcohol use and abuse. The first, when chemical dependence generally starts, is during adolescence when the developing adolescent brain is more vulnerable to the effects of alcohol on the brain's reward circuitry, which in turn can diminish the ability to control alcohol consumption (Nixon & McClain, 2010). The other window of vulnerability is in late middle age, in which problem drinking may act as a coping method for managing stress (Brennan, Schutte, & Moos, 2010). Late-onset problem drinkers are more likely to control their drinking on their own or be successfully treated, compared with individuals with more long-term drinking problems (Moos, Brennan, & Moos, 1991).

Depression and alcoholism may be linked. Alcoholism may represent untreated symptoms of depression, or depression may act as an impetus for drinking in an effort to improve mood. Thus, in some cases, symptoms of both disorders must be treated simultaneously (Gopalakrishnan, Ross, O'Brien, & Oslin, 2009; Oslin et al., 2003). Social isolation and lack of employment can exacerbate these problems. For women who are survivors of violence, trauma, or abuse, substance abuse and mental health problems frequently co-occur (Canadian Women's Health Network, 2006). Drinking among older adults may be confounded by the fact that tolerance for alcohol reliably decreases with age, leaving an older person vulnerable to alcohol-related accidents such as falls.

Treatment of Alcohol Abuse

For years, alcohol abuse was regarded as an intractable problem, but substantial evidence indicates that it can be modified successfully, for example with cognitive behavioural interventions (Loeber et al., 2007). There is also a "maturing out" of alcoholism, which is especially likely in the later years of life (Brennan, Schutte, & Moos, 2010).

Earlier, we noted that alcohol consumption is heavily dependent on the social environment in which it occurs, and this fact is prominent in understanding the recovery process as well. Alcoholics who come from high socio-economic backgrounds and who are in highly socially stable environments (that is, who have a regular job, an intact family, and a circle of friends) do very well in treatment programs, achieving success rates as high as 68 percent,

Adolescence and young adulthood represent a window of vulnerability to problem drinking and alcoholism. Successful intervention with this age group may reduce the scope of the alcoholism problem.

whereas alcoholics of low socio-economic status (SES) with low social stability often have success rates of 18 percent or less. No treatment program will be highly successful unless it takes account of the alcoholic's environment. Without employment and social support, the prospects for recovery are dim (MedicineNet.com, 2002). The Health Psychology in Action box, "After the Fall of the Berlin Wall," presents an example of these problems.

Treatment Programs

In addition to private treatment facilities for alcoholism, there are a limited number of provincially licensed residential care facilities in Canada that offer treatment for alcoholism. However, with only 6,000 beds available and a decline in the number available over the past few years (Dell & Garabedian, 2003), many people are forced to seek other options for treatment. A self-help group, especially Alcoholics Anonymous (AA), is often the most commonly sought source of help for alcohol-related problems (see the Focus on Social Issues box, "A Profile of Alcoholics Anonymous").

Treatment programs for alcoholism and problem drinking typically use broad-spectrum cognitive behavioural therapy to treat the biological and environmental factors involved in alcoholism simultaneously (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2000a). The goals of the approach are to decrease the reinforcing properties of alcohol, to teach people new behaviours inconsistent with alcohol abuse, and to modify the environment to include reinforcements for activities that do not involve alcohol. These approaches also attempt to instill coping techniques for dealing with stress and relapse-prevention methods to enhance long-term maintenance.

For hard-core alcoholics, the first phase of treatment is **detoxification.** Because this can produce severe symptoms and health problems, detoxification is typically conducted in a carefully supervised and medically monitored setting.

Once the alcoholic has at least partly dried out, therapy is initiated. The typical program begins with a short-term, intensive inpatient treatment followed by a period of continuing treatment on an outpatient basis (NIAAA, 2000b). Typically, inpatient programs last

HEALTH PSYCHOLOGY IN ACTION

BOX 5.2

After the Fall of the Berlin Wall

When the Berlin Wall came down in 1989, there were celebrations worldwide. In the midst of the jubilation, few fully anticipated the problems that might arise in its wake. Hundreds of thousands of East Germans, who had lived for decades under a totalitarian regime with a relatively poor standard of living, were now free to stream across the border into West Germany, which enjoyed prosperity, employment, and a high standard of living. But for many people, the promise of new opportunities failed to materialize. Employment was less plentiful than had been assumed, and the East Germans were less qualified for the jobs that did exist. Discrimination and hostility toward the East Germans was higher than expected, and many migrating East Germans found themselves unemployed.

Unemployment is a severe stressor that has pervasive negative implications for one's entire life. It produces chronic tension, anxiety, and a sense of discouragement. Because alcohol is known to reduce tension and anxiety and can stimulate a good mood, the potential for drinking to alleviate stress among the unemployed is high. Several studies document the fact that alcohol intake often rises among the unemployed (for example, Catalano, Dooley, Wilson, & Houph, 1993). But not everyone responds to the stress of unemployment by drinking.

Two German researchers, Mittag and Schwarzer (1993), examined alcohol consumption among men who had found employment in West Germany and those who had remained unemployed. In addition, they measured self-efficacy with respect to coping with life's problems through such items as "When I am in trouble, I can rely on my ability to deal with the problem effectively." Presumably, individuals who have high feelings of self-efficacy are less vulnerable to stress, and thus they may be less likely to consume alcohol under stressful circumstances than are those with a low sense of self-efficacy.

The researchers found that men with a high sense of self-efficacy were less likely to consume high levels of alcohol. Self-efficacy appeared to be especially important in responding to the stress of unemployment. Those men who were unemployed and had a low sense of self-efficacy were drinking more than any other group. Thus, being male, being unemployed for a long time, and not believing in a sense of personal agency led to heavy drinking.

Although psychologists cannot provide jobs to the unemployed, perhaps they can empower individuals to develop more optimistic self-beliefs. If one believes that one can control one's behaviour, cope effectively with life, and solve one's problems, one may be able to deal effectively with setbacks (Mittag & Schwarzer, 1993).

---

between 10 and 60 days, with an average of approximately 28 days (R. K. Fuller & Hiller-Strumhöfel, 1999). After discharge, some patients attend follow-up sessions, whereas others are discharged to supervised living arrangements.

Cognitive Behavioural Treatments   A variety of behaviour modification techniques have been incorporated into alcohol treatment programs (NIAAA, 2000b). Many programs include a self-monitoring phase, in which the alcoholic or problem drinker begins to understand the situations that give rise to and maintain drinking. Contingency contracting is frequently employed, in which the person agrees to a psychologically or financially costly outcome in the event of failure. Motivational enhancement procedures have also been included in many cognitive behavioural interventions with alcoholics and problem drinkers, because the responsibility and the

capacity to change rely entirely on the client. Consequently, working to provide individualized feedback about the patient's drinking and the effectiveness of his or her efforts can get the client motivated and on board to continue a program of treatment that may be more resistant to the inevitable temptations to relapse (NIAAA, 2000b).

Some programs have included medications for blocking the alcohol-brain interactions that may contribute to alcoholism. One such medication is naltrexone, which is used as an aid to prevent relapse among alcoholics. It blocks the opioid receptors in the brain, thereby weakening the rewarding effects of alcohol. Although drugs have shown some success in reducing alcohol consumption in conjunction with cognitive-behavioural interventions, successful maintenance requires patients to continue taking the drugs on their own, and if they choose not to do so, they reduce the effectiveness of the chemical treatment.

FOCUS ON SOCIAL ISSUES   BOX 5.3

A Profile of Alcoholics Anonymous

No one knows exactly when Alcoholics Anonymous (AA) began, but it is believed that the organization was formed around 1935 in Akron, Ohio. The first meetings were attended by a few acquaintances who discovered that they could remain sober by attending services of a local religious group and sharing with other alcoholics their problems and efforts to remain sober. In 1936, weekly AA meetings were taking place around the country.

Who participates in AA? Currently, its membership is estimated to be more than 2 million individuals worldwide, with over 95,000 members in Canada (Alcoholics Anonymous, 2011). The sole requirement for participation in AA is a desire to stop drinking. Originally, the organization attracted hardened drinkers who turned to it as a last resort; more recently, however, it has attracted many people who are experiencing drinking problems but whose lives are otherwise intact. Members come from all walks of life, including all socio-economic levels, races, cultures, sexual preferences, and ages.

The philosophy of Alcoholics Anonymous is a commitment to the concept of self-help. Members believe that the person who is best able to reach an alcoholic is a recovered alcoholic. In addition, members are encouraged to immerse themselves in the culture of AA—to attend "90 meetings in 90 days." At these meetings, AA members speak about the drinking experiences that prompted them to seek out AA and what sobriety has meant to them. Time is set aside for prospective members to talk informally with long-time members so that they can learn and imitate the coping techniques that recovered alcoholics have used.

AA has a firm policy regarding alcohol consumption. It maintains that alcoholism is a disease that can be managed but never cured. Recovery means that an individual must acknowledge that he or she has a disease, that it is incurable, and that alcohol can play no part in future life. Recovery depends completely on staying sober.

Is Alcoholics Anonymous successful in getting people to stop drinking? AA's dropout rate is unknown, and success over the long term has not been carefully chronicled. Moreover, because the organization keeps no membership lists (it is anonymous), it is difficult to evaluate its success. However, AA itself maintains that two out of three individuals who wish to stop drinking have been able to do so through its program.

Evaluations of alcohol treatment programs have found that people do better if they participate in AA while participating in a medically based formal treatment program, than they would in the formal treatment program alone (Timko, Finney, Moos, & Moos, 1995). A study that compared AA participation with more formal treatment found comparable effects, a striking finding because the AA attendees had lower incomes and less education initially and thus had somewhat worse prospects for improving.

Researchers attempting to understand the effectiveness of AA programs have pointed to several important elements. AA is like a religious conversion experience in which an individual adopts a totally new way of life; such experiences can be powerful in bringing about behaviour change. Also, a member who shares his or her experiences develops a commitment to other members. The process of giving up alcohol contributes to a sense of emotional maturity and responsibility: helping the alcoholic accept responsibility for his or her life. AA may also provide a sense of meaning and purpose in the individual's life—most chapters have a strong spiritual or religious bent and urge members to commit themselves to a power greater than themselves. The group can also provide affection and satisfying personal relationships and thus help people overcome the isolation that many alcoholics experience.

AA is significant as an organization for several reasons. First, it was one of the earliest self-help programs for individuals suffering from a health problem; therefore, it has provided a model for self-help organizations whose members have other addictive problems, such as Overeaters Anonymous and Gamblers Anonymous, among many others. Second, in having successfully treated alcoholics for decades, AA has demonstrated that the problem of alcoholism is not as intractable as had been widely assumed.

Many successful treatment programs have attempted to provide alcoholics with stress management techniques that they can substitute for drinking because, as noted earlier, alcohol is sometimes used as a method of coping with stress. For example, relaxation training, assertiveness training, and training in social skills help the alcoholic or problem drinker deal with problem situations without resorting to alcohol.

Relapse Prevention   Relapse is a major difficulty in treating alcohol abuse. Authoritative studies report relapse rates of 50 percent or more at two to four years after treatment. One recent meta-analysis of past alcohol treatment outcome studies estimates that more than 50 percent of treated patients relapse within the first three months after treatment (NIAAA, 2000b). Practising coping skills or social skills in high-risk-for-relapse situations is a mainstay of relapse-prevention interventions. In addition, the recognition that people often stop and restart an addictive behaviour several times before they are successful has led to the development of techniques for managing relapses. Understanding that an occasional relapse is normal helps the problem drinker realize that any given lapse does not signify failure or a lack of control. Drink-refusal skills and the substitution of nonalcoholic beverages in high-risk social situations are also important components of relapse-prevention skills. Interventions with heavy-drinking university students have made use of these approaches (see the Focus on Social Issues box, "The Drinking University Students").

Evaluation of Alcohol Treatment Programs   Surveys of alcohol treatment programs suggest several factors that are consistently associated with success: identifying factors in the environment that control drinking and modifying those factors or instilling coping skills to manage them, a moderate length of participation (about six to eight weeks), outpatient aftercare, inclusion of a stress management component, and active involvement of relatives and employers in the treatment process (Health Canada, 1999).

Minimal Interventions   Even minimal interventions can make a dent in drinking-related problems. In one study (Oslin et al., 2003), veterans with depression or who were at risk for problem drinking received either usual care or a telephone alcoholism and depression management program in which a behavioural health specialist provided information and support over a four-month period. Compared with usual care, the telephone-implemented intervention produced beneficial changes, suggesting that telephone interventions can be a viable, low-cost approach to this problem (Oslin et al., 2003).

The biggest problem facing treatment for alcoholism is that most alcoholics (approximately 85 percent) do not receive any formal treatment. In response, many health psychologists have suggested that social engineering represents the best attack on the problem. Banning alcohol advertising, raising the legal drinking age, and strictly enforcing the penalties for drunk driving may be the best approaches for reaching this untreated majority.

Critical Checkpoint

Addressing the Culture of Drinking in University

Box 5.4 highlights some of the issues and problems associated with alcohol use among university students. Given events like "frosh week" and the stress that many first-year students experience as they transition to a new environment, what role, if any, should universities play in helping to reduce the risk of binge drinking and/or problem drinking among students?

Can Recovered Alcoholics Ever Drink Again?

A controversial issue in the treatment of alcohol abuse is whether alcoholics and problem drinkers can learn to drink in moderation. For decades, research and self-help treatment programs for alcoholism, such as Alcoholics Anonymous, have argued that the alcoholic is an alcoholic for life and must abstain from all drinking.

It does appear that a narrow group of problem drinkers may be able to drink in moderation—namely, those who are young and employed, who have not been drinking long, and who live in a supportive environment (Marlatt, Larimer, Baer, & Quigley, 1993). Drinking in moderation has some advantages for these problem drinkers. First, moderate drinking represents a realistic social behaviour for the environments that a recovered problem drinker may encounter. For example, as the Focus on Social Issues box, "The Drinking University Students," indicated, moderating drinking may be a more realistic goal than total abstinence for university students, who are often in heavy-drinking environments. Second, traditional therapeutic programs that emphasize total abstinence often have high dropout rates. Programs for problem drinkers that emphasize moderation may be better able to hold on to these participants.

Preventive Approaches to Alcohol Abuse

Because alcoholism is a serious health problem, many researchers have felt that a prudent approach is to appeal

FOCUS ON SOCIAL ISSUES   BOX 5.4

The Drinking University Students

Most Canadian university students drink alcohol, and as many as 16 percent of them are heavy drinkers (Adlaf, Demers, & Gilksman, 2005). A survey of more than 6,000 undergraduate students from 40 Canadian universities suggests that a significant proportion of students engage in patterns of harmful or hazardous drinking. According to the Canadian Campus Survey 2004, about 41 percent of university students overall appear to be involved in occasional binge drinking, defined as having five or more drinks on one occasion (Adlaf, Demers, & Gilksman, 2005). Moreover, binge drinking and other harmful drinking patterns appear to be increasing in women (see Table 5.1).

Many universities have tried to deal with the heavy drinking problem by providing educational materials about the harmful effects of alcohol. However, dogmatic alcohol-prevention messages may actually enhance intentions to drink in those who already have unhealthy attitudes towards drinking (Campo & Cameron, 2006). Moreover, the information conflicts markedly with the personal experiences of many university students who find drinking in a party situation to be satisfying, even exhilarating, behaviour. Many university students do not see drinking as a problem (Baer, Kivlahan, Fromme, & Marlatt, 1991), and others mistakenly assume that they are alone in their discomfort with campus alcohol practices (Suls & Green, 2003). Those students who would normally be a target for interventions may regard their drinking as a natural outgrowth of their social environment. Consequently, motivating students even to attend alcohol abuse programs, much less to follow their recommendations, is difficult.

Therefore, some of the more successful efforts to modify university students' drinking have encouraged students to gain self-control over drinking rather than explicitly trying to get them to reduce or eliminate alcohol consumption altogether. A program developed by Lang and Marlatt (Baer et al., 1991; Lang & Marlatt, 1982) incorporates techniques derived from attitude-change research and from cognitive behavioural therapy in a total program to help university students gain such control. The program includes information about the risks of alcohol consumption, the acquisition of skills to moderate alcohol consumption, the use of drinking limits, relaxation training and lifestyle rebalancing, nutritional information, aerobic exercise, relapse-prevention skills designed to help students cope with high-risk situations, assertiveness training, and drink-refusal training.

Such programs typically begin by getting students to monitor their drinking and to understand what blood-alcohol levels mean and what their effects are. Often, merely monitoring drinking and recording the circumstances in which it occurs actually leads to a reduction in drinking.

The consumption of alcohol among students is heavily under the control of peer influence, the need to relax in social situations, and the need for approval (Turrisi, Wiersma, & Hughes, 2000). Thus, many intervention programs include training in cognitive behavioural alcohol skills designed to get students to find alternative ways to relax and have fun in social situations without abusing alcohol. Such skills training has proven to be an important component of successful alcohol abuse programs with university students (Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990). What are some of these skills?

To gain personal control over drinking, students are taught to identify the circumstances in which they are most likely to drink, and especially to drink to excess. For example, attendance at special events on campus may actually encourage binge drinking (see Table 5.2). Then students are taught specific coping skills so that they can moderate their alcohol consumption. For example, one technique for controlling alcohol consumption in high-risk situations, such as a party, is **placebo**

TABLE 5.1 | Patterns of Hazardous or Harmful Drinking among Canadian Undergraduates

	1998	2004
All students	30.0%	32.0%
Men	36.9	37.6
Women	24.3	27.5
Living on campus	—	53.0
Living off campus without family	—	44.0
Living off campus with family	—	34.1

Source: Adlaf, Demers, & Gilksman, (2005).

FOCUS ON SOCIAL ISSUES   BOX 5.4

The Drinking University Students (continued)

Despite the success of such programs, interest has shifted from treatment to prevention, because so many students get into a heavy drinking lifestyle. Alan Marlatt and colleagues (Marlatt et al., 1998) enrolled 348 students in an intervention during their senior year of high school and randomly assigned half to an individualized motivational brief intervention in their first year of university or to a no-treatment control condition. The intervention, conducted individually with each student, consisted of guiding the students through their drinking patterns and risks and their knowledge about alcohol's effects. Their rates of drinking were compared with university averages and their risks for current and future problems, such as potential decline in grades, blackouts, and accidents, were identified (see Table 5.3).

The interviewers were careful not to confront the students but did ask them questions such as "What do you make of this?" and "Are you surprised?" Each student was urged, but not forced, to come up with specific goals that might lead them to change their behaviour, an intentional low-key effort to place responsibility for this change on the student. Over a two-year follow-up period, students in the intervention showed significant reductions in both their drinking rates and the harmful consequences that frequently accompany heavy drinking. Interventions like these emphasize the importance of coming up with effective prevention strategies before problems have a chance to take root (Baer et al., 1991; see also Baer et al., 1992).

drinking. This involves either the consumption of non-alcoholic beverages while others are drinking or the alternation of an alcoholic with a nonalcoholic beverage to reduce the total volume of alcohol consumed.

TABLE 5.2 | Percentage of Students Who Reported Binge Drinking at a Campus Event during a One-Month Period

Campus Event Attended	%
Happy hours	78.4
Low-priced promotions at bar	83.2
Special promotions by beer company	86.1
Cover charge for unlimited drinks at bar	84.5

Source: Adlaf, Demers, & Gilksman, (2005).

TABLE 5.3 | Alcohol-Related Problems of University Students Who Had a Drink during a One-Year Period

Alcohol-Related Problem	Drinkers Who Reported Problems
Had a hangover	53.4%
Memory loss	25.4
Missed class	18.8
Engaged in unplanned sexual activity	14.1
Drank while driving	7.4
Got hurt or injured	6.5
Engaged in unsafe sexual activity	6.4

Source: Adlaf, Demers, & Gilksman, (2005).

to adolescents to avoid drinking altogether or to control their drinking before the problems of alcohol abuse set in. Social influence programs mounted through high schools are one approach to teaching young adolescents drink-refusal techniques and coping methods for dealing with high-risk situations so that they will not end up in situations in which drinking is difficult to avoid. Media campaigns are another approach that may be effective in preventing alcohol abuse. For example, the Manitoba Liquor Control Commission has launched a unique media campaign consisting of television ads and a Web site (www.beundrunk.com) to help promote responsible drinking. In addition to providing resources and information about the consequences of irresponsible drinking, the video clips on the Web site illustrate the negative consequences of not drinking responsibly, and challenge young adults to resist social pressures and be "undrunk."

In addition to interventions with children and adolescents, social engineering solutions hold promise for managing alcohol. These include increasing taxes on alcohol, restricting alcohol advertising and promotion that especially targets young people, cracking down on misleading health claims for alcohol, supporting education programs in schools and media, and strengthening the federal government's focus on alcohol as a major youth problem. As long as alcohol remains the substance of choice for abuse among young people, its prevention will be a high priority (Chenier, 2001).

Drinking and Driving

Thousands of vehicular fatalities each year result from drunk driving. This aspect of alcohol consumption is probably the one that most mobilizes the general public against alcohol abuse. Programs such as MADD (Mothers Against Drunk Driving) have been founded and staffed by the parents and friends of those killed by drunk drivers. Increasingly, the political impact of these and related groups is being felt, as they pressure provincial and municipal governments for tougher alcohol control measures and stiffer penalties for convicted drunk drivers.

Moreover, hosts and hostesses are now pressured to assume responsibility for the alcohol consumption of their guests and for friends to intervene when they recognize that their friends are too drunk to drive. But this can be a difficult task to undertake. How do you know when to tell a friend that he or she is too drunk to drive and to intervene so that the drunk individual will not drive? Knowing the driver well, perceiving that he or she really needs help, feeling able to intervene, and having had conversations in the past that encouraged intervention all enhance the likelihood that an individual will intervene in a situation when a peer is drunk (Newcomb, Rabow, Monto, & Hernandez, 1991). However, the norms to control others' drinking, though growing stronger, still fly in the face of beliefs in individual liberty and personal responsibility. Consequently, many drunk drivers remain on the road.

With increased media attention on the problem of drunk driving, drinkers seem to be developing self-regulatory techniques to avoid driving while drunk. Such techniques involve limiting drinking to a prescribed number, arranging for a designated driver, getting a taxi, or delaying or avoiding driving after consuming alcohol (S. L. Brown, 1997). Thus, although prevention in the form of eliminating drinking altogether is unlikely to occur, the rising popularity of self-regulation to avoid drunk driving may help reduce in this serious problem.

Is Modest Alcohol Consumption a Health Behaviour?

Despite the fact that problem drinking and alcoholism remain major health risks and contribute to overall mortality, modest alcohol intake actually adds to a long life. Moderate drinking is associated with reduced risk of a heart attack, lower blood pressure, lower risk of dying after a heart attack, decreased risk of heart failure, less thickening of the arteries with age, an increase in high-density lipoprotein (HDL) cholesterol (the so-called "good" cholesterol), and fewer strokes among the elderly (Britton & Marmot, 2004; Goatcher, 2002). However, moderate drinking in younger populations may actually enhance risk of death, probably through alcohol-related injuries (Goatcher, 2002).

Debate has centred on whether a particular type of alcohol consumption shows more benefits than others. Some researchers have suggested that red wine is healthier because of pigments called polyphenols that may inhibit hardening of the arteries (Magrone & Jirillo, 2011), and may have immuno-modulating properties that are protective against a variety of diseases (Magrone & Jirillo, 2010). But other studies have suggested that white wine may be equally beneficial (Heart and Stroke Foundation, 2001). The evidence from one Canadian study suggests that modest consumption of any alcoholic beverage—beer, wine, or spirits—may produce beneficial effects as the body absorbs equally effective amounts of protective molecules from alcoholic drinks (Prickett et al., 2004).

Postscript

Despite the fact that moderate drinking is now being recognized as a potential health behaviour, the benefits appear to occur at fairly low levels. For example, women who drink an average of half a drink a day reduce their risk for high blood pressure, but those who have more than one and a half drinks a day can actually raise it (Goatcher, 2002). The World Health Organization has warned that the message that moderate drinking promotes health may encourage people to continue or increase alcohol consumption to dangerous levels. Overall, the number of deaths attributable to alcohol consumption continues to increase worldwide (Pearson, 2004).

L04 HOW IS SMOKING HARMFUL FOR HEALTH AND WHAT FACTORS INFLUENCE SMOKING?

Smoking is the single greatest cause of preventable death. In Canada, smoking accounts for at least 45,000 deaths each year—with a large portion of these deaths cardiovascular related. Smoking also accounts for at least 30 percent of all cancer deaths (Physicians for a Smoke-Free Canada, 2002; see Table 5.4).

In addition to the risks for heart disease and lung cancer, smoking increases the risks for chronic bronchitis, emphysema, respiratory disorders, damage and injuries due to fires and accidents, lower birth weight in offspring, and retarded fetal development (Physicians for a Smoke-Free Canada, 2002).

Cigarette smokers also appear to be generally less health conscious and are more likely to engage in other unhealthy behaviours than are non-smokers (Public Health Agency of Canada, 2004). In particular, smoking and drinking often go together, and drinking seems to cue smoking and to make it more difficult to give up smoking (Shiffman, Fischer, et al., 1994). Smokers also

TABLE 5.4 | Cigarette Smoking–Related Mortality among Canadians

Disease	Deaths
Cancer of the lung, oral cavity, esophagus, pancreas, etc.	17,700
Cardiovascular conditions, including ischemic heart disease and stroke	17,600
Respiratory conditions, including chronic obstructive pulmonary disease (COPD)	9,500

Source: Physicians for a Smoke-Free Canada, 2002, www.smoke-free.ca/Health/pscissues_health.htm.

have more accidents and injuries at work, take off more sick time, and use more health benefits than non-smokers, thereby representing substantial costs to employers (Rehm et al., 2006). Not surprisingly, a prospective study of smokers that followed smokers over a five-year period found that current smokers were spent more than twice as many days in the hospital than did people who had never smoked (Wilkins, Sheilds, & Rotermann, 2009).

Although it was once thought that smoking and alcohol served as entry-level drugs in childhood and adolescence for subsequent substance use and abuse, a recent cross-national study involving 17 countries calls this "gateway" theory into question. Although marijuana use was often preceded by smoking and alcohol use, this sequence of drug use initiation was not constant across different cultures and contexts (Degenhardt et al., 2010). The dangers of smoking are not confined to the smoker. Studies of second-hand smoke reveal that spouses, family members of smokers, and co-workers are at risk for a variety of health disorders (Health Canada, 2004b). Parental cigarette smoking may lower cognitive performance in adolescents by reducing blood oxygen capacity and increasing carbon monoxide levels (Bauman, Koch, & Fisher, 1989).

Synergistic Effects of Smoking

Smoking has a synergistic effect on other health-related risk factors; that is, it enhances the detrimental effects of other risk factors in compromising health. For example, smoking and cholesterol interact to produce higher rates of morbidity and mortality due to heart disease than would be expected from simply adding together the risk of smoking and high cholesterol (Perkins, 1985). Because nicotine stimulates the release of free fatty acids, it may increase the synthesis of triglycerides, which in turn decreases HDL production. Reducing smoking and modifying diet for people with both risk factors, then, is a high priority for intervention.

Stress and smoking can also interact in dangerous ways. For men, nicotine can increase the magnitude of heart rate reactivity to stress. For women, smoking can reduce heart rate but increase blood pressure responses, also an adverse reactivity pattern (Girdler, Jamner, Jarvik, Soles, & Shapiro, 1997). The stimulating effects of nicotine on the cardiovascular system may put smokers at risk for a sudden cardiac crisis, and the long-term effects on reactivity in response to stress may aggravate coronary heart disease risk factors. Smoking also acts

synergistically with low socio-economic status, with greater harm caused to disadvantaged groups than more advantaged groups, perhaps due to the stressful life circumstances of those in lower socio-economic groups (Pampel & Rogers, 2004).

Smoking also appears to interact with exercise and the motives for exercising. Smokers engage in less physical activity as long as they continue smoking, while people who engage in exercise for friendship, stress relief, and health benefits are less likely to smoke (Verkooijen, Nielsen, & Kremers, 2009). Because physical exercise is so important to a variety of health outcomes, the fact that smoking reduces its likelihood represents a further indirect contribution of smoking to ill health.

Smoking is related to a substantial increase in women's risk of developing breast cancer after menopause. An expert review panel comprised of four Canadian health agencies found that both active and passive smoking (i.e., exposure to second-hand smoke) increased the risk for breast cancer. The review also found up to a 50 percent greater chance for women who smoke and are carriers of genes that restrict the breakdown of certain chemicals in cigarette smoke and therefore carry more of those chemicals in their bloodstream (Johnson et al., 2011). Shockingly, there was also evidence for a 65 percent increased risk for breast cancer among premenopausal women who had never smoked but who had been exposed to second-hand smoke. Cigarette smoking interacts synergistically with depression such that a depressed person who smokes is at substantially greater risk for cancer. Immune alterations associated with major depression interact with smoking to elevate white blood cell count and to produce a decline in natural killer cell activity. Natural killer cells are thought to serve a surveillance function in detecting and responding to early cancers (Jung & Irwin, 1999). Smoking is also considered to be a potential cause of depression. Findings from a 26-year population-based study in Denmark found clear links between daily smoking in women and men and subsequent development of depression (Flensborg-Madsen et al., 2011). Thus, the concern about the synergistic impact of smoking and depression on health is even more alarming.

The synergistic health risks of smoking are extremely important and may be responsible for a substantial percentage of smoking-related deaths. However, research suggests that the public is largely unaware of the synergistic adverse effects of smoking in conjunction with other risk factors (Hermand, Mullet, & Lavieville, 1997). Nonetheless, the direct effects of smoking on poor health are well established, and its synergistic effects are increasingly being uncovered. Moreover, stopping smoking clearly has beneficial health effects. The risks for coronary heart disease (CHD) and lung cancer are substantially lowered by stopping smoking, which makes smoking the most important health-compromising behaviour in existence.

The risks of smoking are not confined to the smoker. Co-workers, spouses, and other family members of smokers are at continued risk for many smoking-related disorders.

A Brief History of the Smoking Problem

For years, smoking was considered to be a sophisticated and manly habit. Characterizations of 19th- and 20th-century gentry, for example, often depicted men retiring to the drawing room after dinner for cigars and brandy. Cigarette advertisements of the early 20th century built on this image, and by 1965, 61 percent of the adult male population in Canada was smoking (Physicians for a Smoke-Free Canada, 2007).

In 1962, a report of the Royal College of Physicians of the United Kingdom concluded that cigarette smoke may be an important cause of lung cancer. Soon after, in June 1963, the Minister of Health announced in the Canadian House of Commons that smoking was linked to cancer (Wyckam, 1997). After the 1964 Surgeon General's report concluding that smoking was a cause of cancer in men (U.S. Department of Health, Education, and Welfare and U.S. Public Health Service, 1964), and an extensive publicity campaign to highlight the dangers of smoking, male smoking subsequently declined in Canada (to 51 percent by 1975). However, women's smoking actually remained stable during the same period, from 38 percent in 1965 to 39 percent by 1974. More frightening still, by 1975 the percentage of female teenage smokers had increased to 48 percent from 37 percent in 1965. The advantage in life expectancy that women usually enjoy compared with men is shrinking noticeably, and a large part of this decline in women's longevity advantage is due to smoking (Koretz, 2003a). Despite dawning awareness of the threat of smoking, then, smoking continues to be a formidable problem.

FIGURE 5.2 | Percentage of Canadian Men, Women, and Teenagers Who Smoke (2009)

Source: Physicians for a Smoke-Free Canada, 2007, www.smokefree.ca/factsheets/pdf/prevalence.pdf.
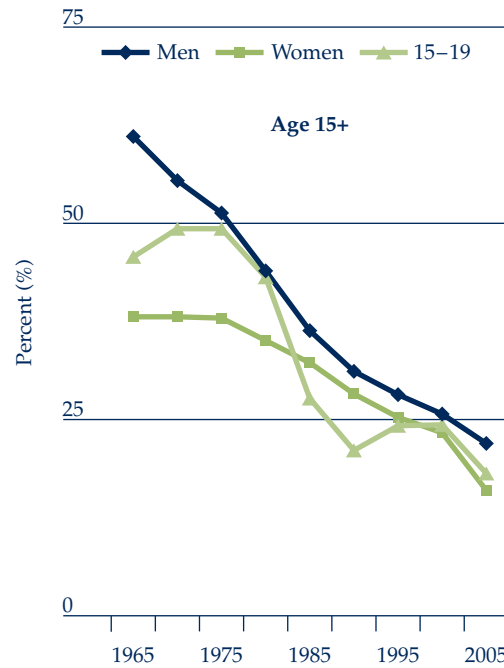
The good news is that, in Canada, the number of adults who smoke has fallen substantially since 1975 (see Figure 5.2). Nonetheless, smoking continues to be a major health problem. Critics have argued that the

Smoking has been represented by the tobacco industry as a glamorous habit, and one task of interventions has been to change attitudes about smoking.

72 DPI

tay19790_ch05_120–152.indd Page 137 23/09/11 8:27 PM user-f494   Volume/203/es/MHR00106/tay19790_disk1of1/0070319790/tay19790_pagefile

Chapter 5   Health-Compromising Behaviours   **137**

TABLE 5.5 | Smoking Prevalence by Age and Sex

	Percentage of Population	
Age	**Males**	**Females**
Total	**22.6%**	**17.7%**
12–19	12.2	9.8
20–34	29.9	23.0
35–44	25.3	19.9
45–64	24.8	20.3
65+	10.9	8.6

Source: Canadian Community Health Survey, 2009, Statistics Canada.

tobacco industry has disproportionately targeted minority groups and teens for smoking, and indeed, the rates among certain low-SES minority groups, such as First Nations female youth, are especially high (Assembly of First Nations, 2003). In 1994, about 27 percent of teenagers smoked regularly but by 2001 that figure was 22.5 percent; as of 2009, it has once again declined to 20.1 percent (Statistics Canada, 2010). Table 5.5 presents current figures on the prevalence of smoking.

Why Do People Smoke?

Decades of research on smoking have revealed how difficult smoking is to modify. This is in large part because smoking is determined by multiple physiologi-cal, psychological, and social factors. Smoking runs in families, and some twin and adoption studies suggest that there may be some genetic influences on smoking (Piasecki, 2006).

Genes that regulate dopamine functioning are likely candidates for heritable influences on cigarette smoking (Timberlake et al., 2006; Wang & Li, 2009), particularly whether people are able to stop smoking and resist re-lapse during the treatment phase (Lerman et al., 2003). Should smokers be told if they have a genetic risk for smoking? This feedback may heighten a sense of vulner-ability and promote distress, and it does not appear to enhance quitting in most smokers. Consequently, the value of providing such information is questionable.

Factors Associated with Smoking in Adolescents   Smoking begins early. The 2006 Canadian Tobacco Use Monitor-ing Survey from Health Canada (2007b) indicates that almost 15 percent of the adolescent population between the ages of 15 and 19 already smokes cigarettes regularly and consider themselves to be smokers; if anything, these statistics probably underestimate the adolescent smoking rate. However, smoking does not start all at once. There is a period of initial experimentation, during which an individual tries out cigarettes, experiences peer pressure to smoke, and develops attitudes about what a smoker is like. Following experimentation, only some adolescents go on to become heavy smokers (Maggi, Hertzman, & Vaillancourt, 2007; see Figure 5.3).

FIGURE 5.3 | Teenage Smoking
Smoking among Canadian youth, in grades 5 to 9, continues to be a problem as experimental and occasional smoking remains high.
(*Source:* Health Canada, 2007c, www.phac-aspc.gc.ca/dca-dea/publications/hbsc-2004/chapter_6_e.html#6-1 and www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/survey-sondage/2004–2005/chart-image_e.html, reproduced with the permission of the Minister of Public Works and Government Services Canada, 2008.)
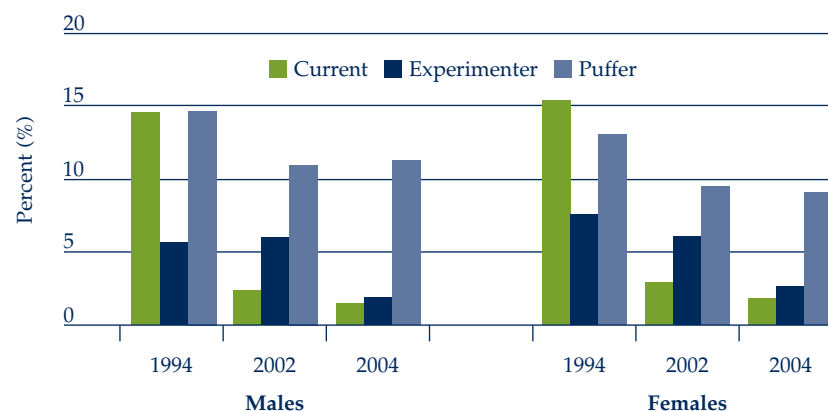
Peer and Family Influences Peer influence is one of the most important factors in beginning smoking in adolescence. Starting to smoke results from a social contagion process, whereby non-smokers have contact with others who are trying out smoking or with regular smokers and then try smoking themselves (Presti, Ary, & Lichtenstein, 1992). Having a best friend who smokes is strongly associated with also being a smoker among adolescents (Youth Smoking Survey, 2010). The presence of peers and family members who smoke can encourage smoking by reducing the perception that smoking is harmful (Rodriguez, Romer, & Audrain-McGovern, 2007).

Adolescents are also more likely to start smoking if their parents smoke, if they are lower class, if they feel social pressure to smoke, and if there has been a major stressor in the family (for example, Unger, Hamilton, & Sussman, 2004). These effects are partly due to the increase in stress and depression that may result (Kirby, 2002; Unger, Hamilton, & Sussman, 2004).

There are also different types of smokers depending on whether they have ever experimented or tried smoking. "Puffers" refers to those who have tried a few puffs of a cigarette smoking but have never smoked a whole cigarette (Health Canada, 2007c). "Chippers," or experimental smokers, on the other hand, are light smokers who consume five or fewer cigarettes a day. Researchers have been interested in what distinguishes them from people who go on to be addicted heavy smokers. Chippers appear to share several risk factors with heavy smokers, including tolerance for deviance, and attitudes and health beliefs that are similar to those of smokers (see Table 5.6 and Figure 5.3). But they also have more protective factors such as high value placed on academic success, supportive relationships at home, and little smoking among peers and parents. Chippers may be informative regarding tobacco control efforts generally and for theories regarding addiction as well (Zhu, Sun, Hawkins, Pierce, & Cummins, 2003).

Finally, peers and family may also influence smoking through their effects on adolescents' smoking-related attitudes and beliefs. For example, a recent national survey of smoking among Canadian youth in grades 5 to 9 suggests that adolescent smokers have more positive beliefs about smoking and are also less likely to see smoking as something that can be immediately harmful (Health Canada, 2007c; see Table 5.6). The only exception is that smokers and non-smokers alike believed that smoking is addictive and harmful to others. The latter belief in particular may be attributable to media campaigns raising awareness about the harmful effects of second-hand smoke (see the Focus on Social Issues box, "Can Non-smokers Be Harmed by Second-hand Smoke?" on pages 146–147).

Weight Control and Smoking There is also some evidence that smoking for some individuals may be tied to a belief that smoking helps to maintain or reduce one's weight, perhaps through controlling appetite (Copeland and Carney, 2003). This may be especially true for women who are worried about staying thin and who are trying to live up to cultural norms regarding thinness. For example, one study examined how self-objectification was related to smoking motives among female undergraduates at the University of Windsor (Fiissel & Lafreniere, 2006). Results suggested that women

TABLE 5.6 | **Health Beliefs and Attitudes by Smoking Status, Youth Grades 5 to 9, Canada 2004–05**

Smoking-related Attitude	Belief/Smokers	Chippers/Experimental Smokers	Puffers	Non-smokers
Tobacco is addictive.	85.5%	89.5%	89.4%	88.2%
Smoke can harm nonsmokers health.	86.4	91.3	90.8	86.6
Smoking helps to stay thin.	32.0	25.1	23.2	16.2
Smoking helps when bored.	46.5	30.1	15.3	10.4
Must smoke many years to hurt health.	27.2	22.5	18.9	13.4
Occasional smoking endangers health.	46.4	46.8	54.9	68.2
Quitting reduces damage to health.	56.8	47.5	46.2	41.0
Smoking helps to relax.	75.7	65.7	39.6	25.7
Smoking is cool.	18.0	12.3	4.0	1.1

Source: Health Canada, 2007c, www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/_survey-sondage_2004–2005/table-13_e.html, reproduced with the permission of the Minister of Public Works and Government Services Canada, 2008.

who internalized the prescribed cultural standards of thinness for the female body were also more likely to report that they smoked to control their appetite and weight.

Self-image and Smoking   The image of the smoker is a significant factor in beginning smoking. Consistent with this point, teenagers whose ideal self-image is congruent with that of a typical smoker are most likely to smoke (Chang, 2007). Appearance-related evaluations that do not involve weight issues are also associated with smoking in both men and women, suggesting that interventions for quitting smoking that target negative appearance concerns in addition to weight control concerns may be especially effective (Grogan, Hartley, Conner, Fry, & Gough, 2010).

Mood and Smoking   Smoking among adolescents is also tied to aggressive tendencies and depressive episodes (Repetto, Caldwell, & Zimmerman, 2005; Rodriguez, Moss, & Audrain-McGovern, 2005). Feelings of being hassled, angry, or sad increase the likelihood of smoking (Whalen, Jammer, Henker, & Delfino, 2001). One study found that experimentally induced sadness among smokers resulted in smoking longer and taking more puffs compared to a control group of smokers (Fucito & Juliano, 2009) In studies that examine smoking over time for adolescents, feelings of stress and psychological distress were clearly tied to the increase in smoking (Wills, Sandy, & Yaeger, 2002). Schools that look the other way or have poor levels of discipline may inadvertently facilitate a student moving from experimentation to regular cigarette use (Novak & Clayton, 2001). As the prevalence of smoking goes up at a particular school, so does the likelihood that additional students will start smoking. Maladaptive coping styles, especially those that involve withdrawal or repressive coping, and lower levels of exercise may contribute to the depression seen among some teen tobacco users (Vickers et al., 2003).

At one time it was thought that the primary window during which young people are vulnerable to smoking was adolescence, specifically late elementary school. Now, however, it appears that there is a new window of opportunity when students make the transition to university. Smoking rates among university students have increased substantially over the past few years, and so far little is known about the factors that predict this disturbing trend. As is true in adolescence, peer behaviour may be one influential factor. Overall, little is known about the determinants of smoking

among university students, although it appears to be more common among those who doubt the health significance of smoking and those who expect smoking will help control their mood (Wetter et al., 2004). Exposure to peers that smoke may have an effect as well (Ellickson, Bird, Orlando, Klein, & McCaffrey, 2003). Clearly, increased efforts need to be undertaken to include university students in smoking prevention and cessation programs (Choi, Harris, Okuyemi, & Ahluwalia, 2003).

The Nature of Addiction in Smoking   Smoking is an addiction, reported to be harder to stop than heroin addiction or alcoholism by many who suffer from multiple addictions. Only experimental smokers are able to smoke casually without showing signs of addiction. Despite the fact that nicotine is known to be a powerfully addictive drug, the possible mechanisms underlying nicotine addiction are only just being uncovered (Hinrichs et al., in press).

Nicotine Addiction   Theories that stress the role of nicotine addiction and the persistence of smoking argue that people smoke to maintain blood levels of nicotine and to prevent the withdrawal symptoms that occur when a person stops smoking. In essence, smoking regulates the level of nicotine in the body, and when plasma levels of nicotine depart from the ideal levels, smoking occurs.

Nicotine alters levels of active neuroregulators, including acetylcholine, norepinephrine, dopamine, endogenous opioids, and vasopressin. Nicotine may be used by smokers to engage these neuroregulators because they produce temporary improvements in performance or affect. Specifically, acetylcholine, norepinephrine, and vasopressin appear to enhance memory; acetylcholine and beta endorphins can reduce anxiety and tension. Alterations in dopamine, norepinephrine, and opioids improve mood, and people find that their performance of basic tasks is often improved when levels of acetylcholine and norepinephrine are high. Consequently, smoking among habitual smokers increases concentration, recall, alertness, arousal, psychomotor performance, and the ability to screen out irrelevant stimuli.

Consistent with this point, habitual smokers who stop smoking report that their concentration is reduced; their attention becomes unfocused; they show memory impairments; and they experience increases in anxiety, tension, irritability, craving, and moodiness.

Summary   People smoke for a number of reasons. Genetic influences may contribute to smoking; smoking typically begins in early adolescence, when youth may have little idea of the problems they face as a result of smoking; smoking clearly has an addictive component related to nicotine; and smoking regulates moods and responses to stressful circumstances. As a consequence, it has been a very difficult problem to treat.

Interventions to Reduce Smoking

Interventions to reduce smoking can be focused on either preventing people, especially young Canadians, from ever starting to smoke, or encouraging smoking cessation among current smokers. Although both approaches are equally important, the immediate versus long-term impacts on tobacco-related mortality differ. For example, reducing the current number of smokers will produce a much larger decrease in the number of tobacco related deaths by the year 2050 than by reducing the number of new smokers (Jha, 2009). In contrast, preventing young adults from ever smoking will only have effects on tobacco related deaths after the year 2050 (Peto & Lopez, 2001).

Changing Attitudes toward Smoking   Following the media releases in the mid-1960s regarding the harmful health effects of smoking, the mass media engaged in a campaign to warn the public about the hazards of smoking. In a short period of time, the Canadian public came to acknowledge these risks. Attitudes toward smoking changed substantially. Even adolescents now view smoking as addictive and as having negative social consequences (Health Canada, 2007c).

Media campaigns, thus, can be extremely effective for providing information about health habits. Media campaigns against smoking have helped instill antismoking attitudes in the general population. These attitudes have also been very effective in discouraging adults from beginning to smoke as well as persuading them to remain non-smokers (Hershey et al., 2005), and for discouraging youth from ever starting to smoke (see the Spotlight on Canadian Research box, "How Effective Are Health Warnings on Cigarette Packages?"). In essence, then, antismoking messages in the media set the stage for efforts to quit smoking.

The Therapeutic Approach to the Smoking Problem   Attitude-change campaigns alone do not help smokers stop smoking, so psychologists have increasingly adopted a therapeutic approach to the smoking problem.

Nicotine Replacement Therapy   Many therapies begin with some form of nicotine replacement. Nicotine gum was originally used to help motivated smokers with quitting. However, smokers do not like chewing nicotine gum, in part because nicotine is absorbed rather slowly through this method. More recently, therapeutic efforts have made use of transdermal nicotine patches, which are worn by individuals motivated to stop smoking. These patches release nicotine in steady doses into the bloodstream. Evaluations show that nicotine replacement therapy produces significant smoking cessation (Cepeda-Benito, 1993; J. R. Hughes, 1993). Although nicotine replacement therapy is not recommended for use among youth smokers in Canada, results from the 2006–7 Youth Smoking Survey suggest that more than 20 percent of current and former youth smokers use this smoking cessation tool (Lane, Leatherdale, & Ahmed, in press).

Multimodal Intervention   Treatments for smoking generally adopt a multimodal approach. This focus incorporates a variety of specific interventions geared to the stage of readiness that an individual experiences with respect to his or her smoking. In addition, as is true in all multimodal interventions, the goal is to engage the smoker's sense of self-control and to enlist active participation in the intervention process (Wittchen, Hoch, Klotsche, & Muehlig, 2011).

Many smoking intervention programs have used the stages model of change as a basis for intervening. Interventions to move people from the precontemplation to the contemplation stage centre on attitudes: emphasizing the adverse health consequences of smoking and the negative social attitudes that most people hold about smoking. Motivating a readiness to quit may, in turn, increase a sense of self-efficacy that one will be able to do so, contributing further to readiness to quit (Baldwin et al., 2006). Moving people from contemplation to action requires that the smoker develop a timetable for quitting, a program for how to quit, and an awareness of the difficulties associated with quitting. Moving people to the action phase would employ many of the cognitive behavioural techniques that have been used in the modification of other health habits.

As this account suggests, smoking would seem to be a good example of how the stages model might be applied. However, interventions matched to the stage of smoking are inconsistent in their effects and do not, at present, provide strong support for a stage approach to helping people stop smoking (Quinlan & McCaul, 2000; Stotts, DiClemente, Carbonari, & Mullen, 2000; Segan, Borland, & Greenwood, 2004).

SPOTLIGHT ON CANADIAN RESEARCH   BOX 5.5

How Effective Are Health Warnings on Cigarette Packages?

In Chapter 3, we examined the possible merits of fear appeals for changing attitudes about health behaviours. But does warning people about the risks associated with a behaviour using fear-invoking messages and images actually lead to changing unhealthy behaviours such as smoking? One group of Canadian researchers attempted to answer this question by examining the effect of reading the cigarette package warning labels on smokers' behaviour over a three-month period (Hammond, Fong, McDonald, Cameron, & Brown, 2003).

More than 600 smokers took part in a phone survey in which they reported whether they had read the graphic warning labels, and the extent to which they had cognitively processed their content (thought about or discussed the messages). Not surprisingly, over 90 percent stated that they had read the labels. Smokers also reported their current intentions to quit smoking or reduce their smoking frequency. When the smokers were contacted again in three months, 23 percent had attempted or successfully quit smoking, and nearly 25 percent had reduced the number of cigarettes they smoked daily. Perhaps most significantly, those who had read, thought about, and discussed the warning labels in greater depth at baseline were more likely to have quit, attempted to quit, or reduced their smoking three months later. Although these findings provide compelling evidence for the effectiveness of cigarette warning labels in changing smoking behaviour, the direction of the relationships are not entirely clear. It is possible that smokers who already have high intentions to quit are more likely to read the labels as a means of reinforcing their intentions. The researchers suggest that the relationship between intentions to quit and reading the labels is likely reciprocal in nature, with the labels strengthening quitting intentions, which then make the smokers more likely to read and discuss the labels as they prepare to quit.

Canada is not the only country to use health warning labels as an intervention to curb smoking behaviour. The United States, Australia, and the United Kingdom also use health warning labels that contain text and/or graphic images to convey the dangers of smoking. However, one international study suggests that the Canadian warnings, which contain both graphic images and text, are among the most effective, especially when it comes to making smokers think about the health risks of smoking (Hammond et al., 2007).

Social Support and Stress Management As is true for other health-habit interventions, those who wish to quit are urged to enlist social support from their spouse, friends, and co-workers in their resolution to stop. Ex-smokers are more likely to be successful over the short term if they have a supportive partner and if they have non-smoking supportive friends. Social support from a partner appears to be more helpful for men attempting to stop smoking than for women (Westmaas, Wild, & Ferrence, 2002).

Because smoking seems to be relaxing for so many people, relaxation training has also been incorporated into some smoking cessation programs. Teaching former smokers to relax in situations in which they might have been tempted to smoke provides an alternative method for coping with stress or anxiety (Manning, Catley, Harris, Mayo, & Ahluwalia, 2005).

Lifestyle rebalancing, through changes in diet and exercise, may also help people cut down on smoking or maintain abstinence after quitting. Image is also important in helping people stop. Specifically, research suggests that people who have a strong sense of themselves as non-smokers may do better in treatment than those who have a strong sense of themselves as smokers (Gibbons & Eggleston, 1996; Shadel & Mermelstein, 1996).

Maintenance To bridge the transition from action to maintenance, relapse-prevention techniques are typically incorporated into smoking-cessation programs (Piasecki, 2006). Relapse prevention is important because the ability to remain abstinent shows a steady month-by-month decline, such that within two years after a smoking cessation program, even the best program does not exceed a 50 percent abstinence rate (Piasecki, 2006).

Like most addictive health habits, smoking shows an abstinence-violation effect, whereby a single lapse reduces perceptions of self-efficacy, increases negative mood, and reduces beliefs that one will be successful in stopping smoking. Stress-triggered lapses appear to lead to relapse more quickly than other kinds (Shiffman et al., 1996). Consequently, smokers are urged to remind themselves that a single lapse is not necessarily worrisome, because many people lapse on the road to quitting.

Relapse Prevention   Relapse-prevention techniques often begin by preparing people for the management of withdrawal, including cardiovascular changes, increases in appetite, variations in the urge to smoke, increases in coughing and discharge of phlegm, and the like. These problems may occur intermittently during the first 7 to 11 days. In addition, relapse prevention focuses on the long-term, high-risk situations that lead to a craving for cigarettes, such as drinking coffee or alcohol (Piasecki, 2006). As just noted, relapse prevention may especially need to focus on teaching people coping techniques for dealing with stressful interpersonal situations. Successful relapse prevention may also rely on being satisfied with one's physical emotional state following quitting (Baldwin et al., 2006).

Self-efficacy is a strong predictor of success in smoking cessation; research has found that, when a sense of self-efficacy wanes, vulnerability to relapse is high, so interventions that address the dynamics of self-efficacy over time may well improve maintenance rates (Shiffman et al., 2000). Self-efficacy during attempts to quit smoking is also sensitive to external contexts such as seeing others smoking, stressful events, and caffeine and alcohol consumption, suggesting that these may be additional areas for interventions to target (Van Zundert, Engels, & Kuntsche, 2011). Unhappily too, after they relapse, new smokers may increase their positive beliefs about smoking (Chassin, Pressen, Sherman, & Kim, 2002; Dijkstra & Borland, 2003). Over the long term, simply remaining vigilant about not smoking predicts abstinence best.

Evaluation of Multimodal Interventions   How successful have multimodal approaches to smoking been? Virtually every imaginable combination of therapies for getting people to stop has been tested. Typically, these programs show high initial success rates for quitting, followed by high rates of return to smoking, sometimes as high as 90 percent. Those who relapse are more likely to be young, have a high degree of nicotine dependence, a low

sense of self-efficacy, greater concerns about gaining weight after stopping smoking, more previous quit attempts, and more slips (occasions when they used one or more cigarettes; Ockene et al., 2000).

Although the rates of relapse suggest some pessimism with respect to smoking, it is important to consider the cumulative effects of smoking-cessation programs, not just each program in isolation (Baer & Marlatt, 1991). Any given effort to stop smoking may yield only a 20 percent success rate, but with multiple efforts to quit, eventually the smoker may be successful in becoming an ex-smoker. In fact, hundreds of thousands of former smokers have successfully stopped, albeit, not necessarily the first time they tried. Factors that predict the ability to maintain abstinence include educational attainment, contemplating quitting smoking, being ready to quit at the beginning of an intervention, and having a sense of self-efficacy (Rosal et al., 1998). Formal smoking-cessation programs may look less successful than they actually are because, over time, the individual may amass enough successful techniques and motivation to persist.

Who Is Best Able to Induce People to Stop Smoking?   Is any particular change agent more able to induce people to stop smoking? For example, is a person more likely to stop smoking if a psychotherapist or physician induces that person to do so?

Although advice about stopping smoking coming from a physician or other health care professional may help with controlling relapse, such advice is rarely given (Ockene et al., 2000). Physician advice is known to increase quit rates among adults up to 3 percent over and above unassisted quit rates, and can also improve smoking attitidues, quitting intentions, and quitting behaviour in adolescents (Hum, Robinson, Jackson, & Ali, in press). Health care professionals' perceptions about the role they can play in smoking cessation may be important for improving outcomes. For example, a survey of pharmacists in four provinces (Ontario, Quebec, Saskatchewan, and Prince Edward Island) regarding attitudes toward their role in smoking cessation found that while most had positive attitudes about stopping smoking, just over 50 percent believed that pharmacists could play an important role in motivating people to cut down or quit smoking (Ashley, Victor, & Brewster, 2007). Despite these positive beliefs, less than 40 percent had actually taken steps to intervene by offering advice about nicotine-replacement therapy or giving other motivating suggestions.

Commercial Programs and Self-help   Commercial stop-smoking clinics, which make use of cognitive-behavioural techniques, enjoy fairly wide attendance. Although cure rates are often advertised to be high, these assessments may be based only on misleading statistics about the short-term, but not long-term, effects. Continued evaluation of these popular programs is essential.

A variety of **self-help aids** and programs have been developed for smokers to quit on their own. These include nicotine gum and nicotine patches, as well as more intensive self-help programs that provide specific instruction for quitting. Although it is difficult to evaluate self-help programs formally, studies suggest that self-help programs' initial quit rates are lower, but long-term maintenance is just as high as more intensive behavioural interventions. Because self-help programs are less expensive, they represent an important attack on the smoking problem (Lipkus et al., 2004).

Public Health Approach   Public health approaches to reducing smoking have included community interventions combining media blitzes with behavioural interventions directed especially at high-risk individuals, such as people who have other risk factors for CHD. Incentive-based community cessation programs have also been used with some success. For example, Ontario implemented a quit smoking contest in 2002 that challenged people to quit and win (Ashbury et al., 2006). An evaluation of the effectiveness of the program one year later revealed that approximately one-third of the smokers who participated in the contest had quit and remained abstinent.

Why Is Smoking So Hard to Change?   As we have seen, smoking is a deeply entrenched behaviour pattern. Although many people are able to stop initially, relapse rates are very high. Several problems contribute to the difficulty of modifying smoking. Initially, smokers are resistant to interventions because of their lack of knowledge and their health-compromising attitudes. Because tobacco addiction typically begins in adolescence, adolescents may use tobacco in ways and in social situations that make it particularly difficult to modify, because it comes to be associated with a broad array of pleasurable activities (Gibson, 1997). In addition, because smoking patterns are highly individualized (Chassin, Presson, Pitts, & Sherman, 2000), it is sometimes difficult for group interventions to address all the factors that may influence and maintain any particular smoker's smoking.

People Who Stop on Their Own   Despite the difficulties of stopping smoking, more than half a million Canadians successfully quit smoking each year (Physicians for a Smoke-Free Canada, 2004). The impetus for stopping smoking on one's own typically comes from health concerns (for example, McBride et al., 2001).

People who successfully quit on their own have good self-control skills, self-confidence in their ability to stop, and a perception that the health benefits of stopping are substantial. Stopping on one's own is easier if one has a supportive social network that does not smoke (Gerrard, Gibbons, Lane, & Stock, 2005). People who stop smoking on their own, however, have no magical solution to the smoking problem. After several efforts to stop, however, many quitters who stop on their own are successful. A list of guidelines for people who wish to stop on their own appears in Table 5.7.

Smoking Prevention

Because smoking is so resistant to intervention and because, increasingly, we have come to understand how and why young people begin to smoke, the war on smoking has shifted from getting smokers to stop to keeping potential smokers from starting (Chassin, Presson, Rose, & Sherman, 1996). These **smoking-prevention programs** are aimed to catch potential smokers early and attack the underlying motivations that lead people to smoke.

Advantages of Smoking-prevention Programs   The advantages of smoking-prevention programs are several. They represent a potentially effective and cost-effective assault on the smoking problem that avoids the many factors that make it so difficult for habitual smokers to stop. Smoking-prevention programs can be easily implemented through the school system. Little class time is needed and no training of school personnel is required. How do researchers try to prevent smoking before it starts?

Social Influence Interventions   An early program to keep adolescents from smoking was developed by Richard Evans and his colleagues in the Houston School District (Evans, Dratt, Raines, & Rosenberg, 1988). Two theoretical principles were central in the design of Evans's **social influence intervention.** First, the fact that parental smoking and peer pressure promote smoking in adolescents indicates that children acquire smoking at least partly through the modelling of others. By observing

TABLE 5.7 | Quitting Smoking

Here are some steps to help you prepare for your quit day:
•   Select a date within the next three weeks. •   Complete your pledge to quit smoking. •   Delay your first cigarette of the day by 30 minutes to an hour. •   Develop a strict schedule for smoking. •   Avoid activities that trigger smoking for you, such as drinking, socializing, and celebrating with friends who smoke.
On the day before your quit day:
•   Throw away your cigarettes. Put away your ashtrays, lighters, and matches. •   Tell a trusted friend that you are quitting and ask for support. Arrange to call your friend at least once a day for your first week as a non-smoker. Look for a support group in your community. •   Feel good about having the courage to try—and the commitment to succeed. •   If you have decided to use a nicotine-replacement therapy or medication, make sure you have everything you need.
On your quit day, follow these suggestions:
•   Do not smoke. •   Apply your self-talk to trigger situations. •   Call a trusted friend and tell the tactics you are using to remain smoke-free. •   Drink less coffee and cola. •   If you aren't using medication to help with nicotine withdrawal, remind yourself that nicotine will be flushed out of your system in three to five days. •   Practise relaxation activities. •   Reward yourself with a treat. •   Avoid as many triggers as you can and change your responses to the ones you can't. •   Review your schedule for tomorrow and decide how you will cope with triggers. •   Put the money you save by not smoking in a glass jar where you can see it.

Source: Canadian Cancer Society, 2007a.

models who are apparently enjoying a behaviour they know to be risky, the children's fears of negative consequences are reduced and their expectation of positive consequences is enhanced. Thus, Evans reasoned, a successful intervention program with adolescents must include the potential for modelling high-status non-smokers.

A second theoretical principle on which the social influence intervention is based is the concept of behavioural inoculation developed by W. J. McGuire (1964, 1973). **Behavioural inoculation** is similar in rationale to inoculation against disease. If one can expose an individual to a weak dose of some germ, one may prevent infection because antibodies against that germ will develop. Likewise, if one can expose individuals to a weak version of a persuasive message, they may develop counterarguments against that message, so that they can successfully resist it if they encounter it in a stronger form.

The following are the three components of the social influence intervention program:

1. Information about the negative effects of smoking is carefully constructed so as to appeal to adolescents.

2. Materials are developed to convey a positive image of the non-smoker (rather than the smoker) as an independent, self-reliant individual.

3. The peer group is used to facilitate not smoking rather than smoking.

Let us consider each component in turn.

Most adolescents know that smoking is a risky behaviour. However, the fact that they continue to smoke suggests that they ignore much of what they know. Therefore, selection of appropriate antismoking materials for this group is critical. Typically, the adolescent's time frame does not include concern about health risks that are 20 to

30 years away. Therefore, antismoking materials must highlight the disadvantages of smoking now, including adverse effects on health, the financial costs of smoking, and negative social consequences of smoking (such as rejection by others), rather than longterm health risks.

The image of the non-smoker is also addressed in the social influence materials. Specifically, films and posters are developed to appeal to adolescents' need for independence, conveying such messages as "You can decide for yourself" and "Here are the facts so you can make a decision." These messages also show how cigarette advertisers use subtle techniques to try to get people to smoke in the hopes that the students will resist cigarette advertising when they encounter it. Simultaneously, these messages also convey an image of the smoker as someone who is vulnerable to advertising gimmicks.

These interventions address the significance of the peer group in several ways. First, high-status, slightly older peer leaders are typically featured in the films and posters as the primary agents delivering the interventions. They demonstrate through role playing how to resist peer pressure and maintain the decision not to smoke. The films convey techniques that adolescents can use to combat pressure, such as stalling for time or using counter-pressure (for example, telling the smoker that she is a fool for ruining her health). In some cases, these messages are reinforced by contact with a peer leader in a small-group interaction after exposure to the filmed material.

Evaluation of Social Influence Programs Do these programs work? This question has been hard to answer for several reasons. Students may learn how to turn down cigarettes, but this may not lead them to do so (Elder, Sallis, Woodruff, & Wildey, 1993). Smoking prevention programs sometimes delay smoking but may not reduce overall rates when assessed several years later. Validating self-reports of smoking is difficult and often is only successfully accomplished through tests such as saliva thiocyanate and expired air carbon monoxide. Despite the fact that school-based anti-smoking programs may be rated as compelling and viwed positively, there is eveidence that this may not necessarily translate into changes in smoking behaviour (Primack, Fine, Yang, Wickett, & Zickmund, 2009).

The Life–skills-training Approach Another effort to prevent smoking in the adolescent population is called the **life–skills-training approach** (G. J. Botvin et al., 1992). Interestingly enough, this approach to smoking prevention deals with cigarette smoking per se in only a small

way. Rather, the rationale for the intervention is that if adolescents are trained in self-esteem and coping enhancement as well as social skills, they will not feel as much need to smoke to bolster their self-image: The skills will enhance the adolescent's sense of being an efficacious person. The results of these programs to date are encouraging as they have also been successfully implemented with different cultural groups (e.g., Seal, 2006). These programs also show some success in the reduction of smoking onset over time (G. J. Botvin et al., 1992).

Smoking-prevention programs are relatively expensive and logistically difficult to implement, so researchers have looked for easier ways to bring about the same positive messages. An interactive CD-ROM program designed to reduce adolescent substance use was developed and made use of several of the same principles on which both the social influence and the life–skills-training programs are based. Directed primarily to marijuana use, students were presented with vignettes that illustrated refusal skills and socially acceptable responses to substance use situations that created temptations—specifically, offers of marijuana. In a randomized experiment with 74 public schools, significant changes were found on adolescents' abilities to refuse an offer of marijuana, their intentions to refuse it, and their perceptions of the social norms that surround it (T. E. Duncan, Duncan, Beauchamp, Wells, & Ary, 2000). These findings present promising prospects for the development of low-cost interventions that may promote substance abuse prevention.

Social Engineering and Smoking

> Since smoking might injure your health, let's be careful not to smoke too much.
> —Warning Label on Cigarette Packages in Japan
> (*Time*, June 25, 2001)

Ultimately, smoking may be more successfully modified by social engineering than by techniques of behavioural change (Heishman, Kozlowski, & Henningfield, 1997; R. M. Kaplan, Orleans, Perkins, & Pierce, 1995). Although it is unlikely that cigarettes will be outlawed altogether, a number of social engineering alternatives may force people to reduce their smoking.

One possibility that has been particularly successful in Canada is to restrict smoking to certain places because of the known harm that can be done to nonsmokers by second-hand smoke (see the Focus on Social Issues box, "Can Non-smokers Be Harmed by Second-hand Smoke?"). As of the end of 2006, nine provinces and territories had implemented 100 percent smoke-free

FOCUS ON SOCIAL ISSUES   BOX 5.6

Can Non-smokers Be Harmed by Second-hand Smoke?

Heather's Story (told in the winter of 2003)

"My name is Heather Crowe. I'm 58 years old, and I'm dying from lung cancer caused by second-hand smoke in the workplace. I was a waitress for over 40 years.

"I worked in the hospitality industry because it let me earn a decent living for myself and my daughter. I worked long hours, sometimes more than 60 hours every week. The air was blue with smoke where I worked, but until recently nobody did or said anything about the smoke in our workplaces. Until last year, I had no idea that second-hand smoke was dangerous. People would say, 'Do you mind if I smoke?' and I said, 'I really don't care.' I didn't have any idea that the smoke in the restaurants could do me harm. I just wasn't protected. I just wasn't told.

"My cancer was diagnosed last year. My health had usually been good, but last spring I noticed some lumps on my neck that didn't go away. Even though I wasn't feeling sick, my daughter encouraged me to visit the doctor. My doctor measured the lumps and sent me for some X-rays and tests. When she told me that results showed a cancerous tumour on my lung that was as big as my hand, I had trouble believing it. 'Are you sure it's not tuberculosis?' I asked. 'I've never smoked a day in my life.'

"The first thing I did was to hire a lawyer to help me make a claim with the Workers Compensation Board. I figured by going forward with a workers compensation claim it would help give other workers financial support as well as helping change the way workers in the hospitality sector are treated. Then I began to ask for letters to support my claim. I got some letters from my doctor, from the politicians, like the mayor and former mayor, and the medical officer of health for Ottawa, and from some Members of Parliament and councillors. To my surprise, the board accepted my claim within eight weeks. I learned that mine was the first claim accepted for illness caused by second-hand smoke in restaurants.

"On the day after I had a biopsy of my lung, one of my regular clients asked me why I was favouring my left arm. I told him I had lung cancer from second-hand smoke. He worked at Health Canada and asked me if they could use me in an advertisement about second-hand smoke. This would help people learn about the need to protect workers, and I said yes.

"By coincidence, the advertisement started the same day that I learned that my claim for compensation had been accepted. My phone began ringing off the hook, there were so many newspapers and television stations interested in the claim.

"Since then I have been across Canada talking to politicians, to schools, and to communities about the need to protect workers from smoke. I think I help because I put a face to cancer. There are lots of statistics out there, but I am a person, and I think that helps people understand that this is a real problem. I just want people to become a little more aware of what second-hand smoke can do.

"My goal is to be the last person to die from second-hand smoke." Heather died at 8:00 p.m. on May 22, 2006 (Physicians for a Smoke-Free Canada, 2006, www.smoke-free.ca/heathercrowe).

As suggested by Heather's story and other increasing evidence, the answer to whether people exposed to smokers' smoke are also harmed is a resounding yes. This so-called **passive smoking,** or **second-hand smoke,** which involves inhaling smoke and smoky air produced by smokers, has been tied to higher levels of carbon monoxide in the blood, reduced pulmonary functioning, and higher rates of lung cancer.

Second-hand smoke is a growing cause of preventable death in the Canada, killing up to 1,000 non-smokers every year (see Table 5.8). Although prolonged

TABLE 5.8 | The Toll of Second-hand Smoke

Disease	Annual Canadian Deaths or Cases
Lung cancer	Over 300 deaths
Heart disease	700 deaths
Sudden infant death syndrome (SIDS)	60 percent of deaths from SIDS may be attributed to parental smoking before or after birth
Low-birth-weight babies	Babies with parental exposure to second-hand have a reduced birth weight
Cognitive difficulties	Exposure to second-hand smoke prenatally can affect children's behaviour, attention, and ability to reason and understand
Asthma and bronchitis in children	Children exposed to second-hand smoke on a regular basis are at least 50 percent more likely to suffer damage to their lungs and breathing problems such as asthma and bronchitis

Source: Health Canada, 2004b, 2004c; Ontario Medical Association 2004.

FOCUS ON SOCIAL ISSUES

BOX 5.6

Can Non-smokers Be Harmed by Second-hand Smoke? (continued)

exposure to second-hand smoke poses the greatest threat to health, exposure for as little as 8 to 20 minutes can cause heart rate increases, depletion of the heart's oxygen supply, constriction of the blood vessels, and increased blood pressure, all reactions which are known to cause heart disease and stroke (Health Canada, 2004b)

The exposure of children to second-hand smoke is particularly disturbing as their higher metabolism means that they absorb higher amounts of smoke than adults. Thankfully, recent estimates suggest that rates of children under 12 who are regularly exposed to second-hand smoke in the home have dropped to only 6 percent in 2008 compared to 26 percent in 1999 (Health Canada, 2009b). Adolescents are also at risk for second-hand smoke exposure with about 11 percent of non-smokers ages 12 to 17 being regularly exposed to second-hand smoke (Statistics Canada, 2009).

In addition to children, spouses and even pets of smokers may be at particular risk. A study conducted in Japan (Hirayama, 1981) followed 540 non-smoking wives of smoking or non-smoking husbands for 14 years and examined mortality due to lung cancer. The wives of heavy smokers had a higher rate of lung cancer than did the wives of husbands who smoked little or not at all. Moreover, these women's risk of dying from lung cancer was between one-third and one-half of what they would have faced had they been smokers themselves. Even dogs whose owners smoke are at 50 percent greater risk of developing lung cancer than are dogs whose owners are non-smokers (Reif, Dunn, Ogilvie, & Harris, 1992).

The importance of protecting people from passive smoking has led to legislation across Canada to make the indoor public and workplaces smoke-free. In addition, the majority of Canadian provinces now have legislature in place to ban smoking in cars with children. In December 2007, Nova Scotia became the first province to adopt legislation banning smoking in cars with children under the age of 19, and, as of this writing, all provinces

except Newfoundland and Labrador, Alberta, Quebec, and the Northwest Territories have banned smoking in cars in which there are children passengers. However, Newfoundland Labrador is expected to amend its Smoke Free Environment Act to include a ban on smoking in cars with children (CBC News, 2011). Although Canada is moving toward a smoke-free society, there is still some way to go before Heather Crowe's vision is realized.

Source: Physicians for a Smoke-Free Canada, 2008.

As a spokesperson for the harmful effects of second-hand smoking, Heather Crowe became a powerful advocate for making workplaces in Canada smoke-free.

legislation banning smoking in enclosed workplaces and public places. An evaluation of the effectiveness of these laws in reducing smoking is promising, with the percentage of Canadians who smoked decreasing from 24 percent to 18 percent between 2000 and 2006. During this period, the number of smoke-free homes and workplaces increased, while cigarette consumption

decreased among those smokers who lived or worked in smoke-restricted environments. In addition, smokers living and working in smoke-free areas were more likely to be in the later stages of change and less likely to be in the early planning and contemplation stages than those smokers who did not encounter such work and home smoking restrictions (Shields, 2007).

Actions such as increasing taxes on cigarettes are most likely to influence smoking among teenagers and young adults with little disposable income. A total ban on tobacco advertising is not out of the question, and at the very least, where and how companies may advertise has come under increasing regulation in Canada since the first tobacco advertising laws were introduced in 1988. Although there have been several changes and updates to these laws since they were introduced, including the required health warning notices and now graphic images in ads, some advocates suggest that our current laws are still not sufficiently stringent to prevent tobacco companies from targeting vulnerable populations (Physicians for a Smoke-Free Canada, 2003).

With the movement toward a smoke-free Canada in full swing through workplace and indoor public place smoking bans in most provinces and territories, and bans on smoking in cars with children growing in acceptance, the next social engineering efforts will likely involve tighter restrictions on tobacco advertising to protect those who are vulnerable from ever becoming smokers.

L05   WHAT ARE EATING DISORDERS?

In Chapter 4 we examined the benefits of eating a healthy diet for enhancing health and avoiding obesity. However, with the heightened public awareness about the risks associated with obesity, for some people the goal of avoiding weight gain can go to extremes and become a health risk rather than a health enhancing behaviour. Cultural standards of beauty and even fitness may motivate some people's eating behaviour to become disordered and harmful (see the Focus on Social Issues box, "The Barbie Beauty Battle").

In pursuit of the elusive perfect body, numerous women and an increasing number of men chronically restrict their diet and engage in other weight-loss efforts, such as laxative use, cigarette smoking, and chronic use of diet pills. Eating disorders typically start during adolescence or young adulthood, and occur more frequently among women than in men (Health Canada, 2002).

The epidemic of eating disorders suggests that the pursuit of thinness is a growing social problem and public health threat of major proportions. Recent years have seen a dramatic increase in the incidence of eating disorders in the adolescent female population of Western countries. Indeed, more than 500,000 Canadians reported suffering from some form of eating disorder in 2005 (Canadian Mental Health Association, 2005). Chief among these are anorexia nervosa and bulimia.

Anorexia Nervosa

Anorexia nervosa is an obsessive disorder amounting to self-starvation, in which an individual diets and exercises to the point that body weight is grossly below optimum level, threatening health and potentially leading to death. Most sufferers are young women.

Developing Anorexia Nervosa   Several factors have been identified in the development of the illness. Genetic factors play a role, especially genes involved in the serotonin, dopamine, and estrogen systems. These systems, which are implicated in both anxiety and food intake, appear to be disrupted in eating disorders (Klump & Culbert, 2007; Striegel-Moore & Bulik, 2007). Genetic factors may also interact with environmental risks, such as stress, in the development of anorexia (Striegel-Moore & Bulik, 2007). A hyperactive HPA axis may also be involved in both anorexia and bulimia (Gluck, Geliebter, Hung, & Yang, 2004). Researchers are therefore increasingly viewing eating disorders as types of behavioural manifestations of efforts to cope with stress (Rojo, Conesa, Bermudez, & Livianos, 2006).

Women who have eating disorders, as well as those who have tendencies toward eating disorders, show high blood pressure and heart rate reactivity to stress and high urinary cortisol, suggesting that they may chronically overreact to stress. In addition, women with eating disorders or tendencies toward them are more likely to be depressed, anxious, and low in self-esteem and to have a poor sense of mastery. The fact that this profile is seen in women with eating disorder tendencies, as well as those women with full-blown eating disorders, suggests that they may be precipitating factors rather than consequences of eating disorders (Koo-Loeb, Costello, Light, & Girdler, 2000).

Body image distortions are also common among anorexic girls, although it is not clear whether this distortion is a consequence or a cause of the disorder. For example, these girls see themselves as still overweight when they have long since dropped below their ideal weight.

Treating Anorexia   Initially, the chief target of therapy is to bring the patient's weight back up to a safe level, a goal that must often be undertaken in a residential treatment setting, such as a hospital. To achieve weight gain, most therapies use behavioural approaches. However, motivation is particularly important, and the anorexic must want to change her behaviour and take an active, collaborative approach to regaining weight if treatment is to be successful (G. T. Wilson, Grilo, & Vitousek, 2007).

FOCUS ON SOCIAL ISSUES   BOX 5.7

The Barbie Beauty Battle

Many health psychologists have criticized the media and the products they popularize for perpetuating false images of feminine beauty (J. K. Thompson & Heinberg, 1999). These images include unhealthily thin models and actresses, as well as children's fashion dolls. Indeed, emerging research indicates that exposure to images of thin-ideal women in advertisements increases negative mood, body dissatisfaction, levels of depression, and lowers self-esteem (Bessenoff, 2006), all factors known to be associated with unhealthy dieting behaviours and eating disorders. The Barbie doll has come under particular criticism because researchers believe that its widespread popularity with young girls may contribute to excessive dieting and the development of eating disorders. Using hip measurement as a constant, researchers have made calculations to determine the changes that would be necessary for a young, healthy woman to attain the same body proportions as the Barbie doll. She would have to increase her bust by five inches, her neck length by more than three inches, and her height by more than two feet while decreasing her waist by six inches (Brownell & Napolitano, 1995). This clearly unattainable standard may contribute to the false expectations that girls and women develop for their bodies.

Nevertheless, Barbie remains one of the most popular dolls worldwide.
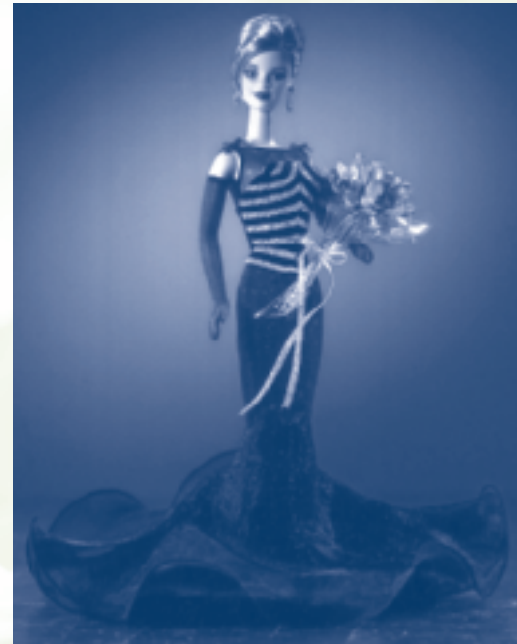
The Barbie Beauty Battle

Because of the health risks of anorexia nervosa, research has increasingly moved toward prevention. Some interventions have tried to address social norms regarding thinness directly (for example, Neumark-Sztainer et al., 2003). For example, one study gave women information about other women's weight and body type, on the grounds that women with eating disorders often wrongly believe that other women are smaller and thinner than they actually are (Sanderson, Darley, & Messinger, 2002). The intervention succeeded in increasing women's estimates of their actual and ideal weight (Mutterperl & Sanderson, 2002).

Bulimia

Bulimia is an eating syndrome characterized by alternating cycles of binge eating and purging through such techniques as vomiting, laxative abuse, extreme dieting or fasting, and drug or alcohol abuse (M. K. Hamilton, Gelwick, & Meade, 1984). A related eating disorder,

termed binge eating disorder, describes the many individuals who engage in recurrent binge eating but do not engage in the compensatory purging behaviour to avoid weight gain (Spitzer et al., 1993). Binge eating usually occurs when the individual is alone; bingeing may be triggered by negative emotions produced by stressful experiences (Telch & Agras, 1996). About half the people diagnosed with anorexia are also bulimic.

Who Develops Bulimia? Whereas many anorexics are thin, bulimics are typically of normal weight or overweight, especially through the hips. The binge phase has been interpreted as an out-of-control reaction of the body to restore weight; the purge phase, an effort to regain control over weight. When a person goes on a diet, the association between physiological cues of hunger and eating break down. Dropping below the set point for her personal weight, the individual reacts as if she may starve. Metabolism slows, and she begins to respond to external food cues instead of internal cues, such as hunger.

Food can become a constant thought. Restrained eating, then, sets the stage for a binge. The control of eating shifts from internal sensations and is replaced by decisions about when and what to eat, which is called a cognitively based regulatory system. This regulatory system is easily disrupted by stress or distraction, and when it is, the dieter is vulnerable to bingeing (Polivy & Herman, 1985). Overvaluing body appearance, a larger body mass than is desired, dieting, and symptoms of depression appear to be especially implicated in triggering binge episodes (Stice, Presnell, & Spangler, 2002).

Stress, especially conflict with others, appears to be implicated in the onset of binge-purge cycles, because the cues that normally are used to restrain eating are less salient in times of stress. One study of women in college found that their bulimia worsened in response to stress or to any experience that led to a feeling of being unattractive, overweight, or ineffectual (Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). Their disordered eating symptoms grew worse over the course of the school year, presumably because their level of stress also increased.

Treating Bulimia   The first barrier to treating bulimia is the fact that many women do not go in for treatment. Either they do not believe that their problem is a serious one, or they do not believe that any medical intervention will overcome it. Accordingly, one of the first steps for helping bulimics get treatment is to convince them that the disorder threatens their health and that medical and psychological interventions can help them overcome the disorder (Smalec & Klingle, 2000).

A number of therapies have been developed to treat bulimia. Overall, a combination of medication and cognitive behavioural therapy appears to be the most effective treatment for bulimia (G. T. Wilson et al., 2007). Typically, this treatment begins by instructing the patient to keep a diary of eating habits, including time, place, type of food consumed, and emotions experienced. Simple self-monitoring can produce decreases in binge-purge behaviour. Monitoring is also often combined with other behavioural treatments in an individualized effort to bring eating under control (Agras, Schneider, Arnow, Raeburn, & Telch, 1989; Kirkley, Agras, & Weiss, 1985).

The increasing prevalence of eating disorders, coupled with the difficulty of treating them effectively, suggests that health psychologists must begin to think about ways to prevent eating disorders from developing rather than exclusively treating them after they occur (Battle & Brownell, 1996). ●

S U M M A R Y

[LO1] **Identify the characteristics of health-compromising behaviours**

- Health-compromising behaviours are those that threaten or undermine good health, either in the present or in the future. Many of these behaviours cluster and first emerge in adolescence.

[LO2] **Describe and define substance dependence**

- Substance dependence involves the repeated self-administration of a substance that results in tolerance, withdrawal, and compulsive behaviour.

- Harm reduction is an approach to dealing with substance abuse that aims to reduce but not necessarily eliminate substance abuse to help minimize the associated health and social harms.

- Psychoactive substances such as illicit drugs result in cognitive and affective changes when ingested that can alter behaviour in ways that can result in a variety of physical, mental and social problems.

[LO3] **Understand how alcoholism and problem drinking compromise health**

- Alcoholism accounts for thousands of deaths each year through cirrhosis, cancer, fetal alcohol syndrome, and accidents connected with drunk driving.

- Alcoholism and problem drinking encompass a wide range of specific behaviour problems with associated physiological and psychological needs.

- Alcoholism has a genetic component and is tied to socio-demographic factors, such as low socio-economic status. Drinking also arises in an effort to buffer the impact of stress and appears to peak between ages 18 and 25.

- Most treatment programs for alcoholism use broad-spectrum cognitive behavioural approaches. Many begin with an inpatient "drying-out" period, followed by the use of cognitive behavioural change methods, such as aversion therapy and relapse-prevention techniques.

- The best predictor of success is the patient. Alcoholics with mild drinking problems,

little abuse of other drugs, and a supportive, financially secure environment do better than those without such supports.

[LO4] **Explain how smoking is harmful for health and what factors influence smoking**

- Smoking accounts for more than 45,000 deaths annually in Canada due to heart disease, cancer, and lung disorders. Smoking adds to and may even exacerbate other risk factors associated with CHD.

- Several theories have attempted to explain the addictive nature of smoking, including theories of nicotine regulation and those that emphasize nicotine's role as a neuroregulator.

- In the past few decades, attitudes toward smoking have changed dramatically for the negative, largely due to the mass media. Attitude change has kept some people from beginning smoking, motivated many to try to stop, and kept some former smokers from relapsing.

- Many programs for stopping smoking begin with some form of nicotine replacement, such as nicotine gum or transdermal nicotine patches. Many multimodal programs include social skills training programs or relaxation therapies. Relapse prevention is an important component of these programs.

- No particular venue for changing smoking behaviour appears to be especially effective. However, physicians and other health care professionals working directly with patients at risk may achieve greater success than other change agents.

- Smoking is highly resistant to change. Even after successfully stopping for a short period of time, most people relapse. Factors that contribute to relapse include addiction and the loss of an effective coping technique for dealing with social situations, among other factors.

- Smoking-prevention programs have been developed to keep youth from beginning to smoke. Many of these programs use a social influence approach and teach how to resist peer pressure to smoke. Others help adolescents improve their coping skills and self-image.

- Social engineering approaches to control smoking have also been employed by banning smoking in indoor public and workplaces, the rationale being that second-hand smoke harms others in the smoker's environment.

[LO5] Describe eating disorders

- The obsession with weight control has induced many people to diet, and may contribute to the epidemic of eating disorders in the adolescent female population of Western countries.

- Anorexia nervosa is an obsessive disorder amounting to self-starvation, in which an individual diets and exercises to the point that body weight is grossly below optimum level.

- Bulimia is characterized by alternating cycles of binge eating and purging through such techniques as vomiting, laxative abuse, extreme dieting or fasting, and drug or alcohol abuse.

KEY TERMS

addiction   p. 122
alcoholism   p. 125
anorexia nervosa   p. 148
bulimia   p. 149
behavioural inoculation   p. 144
craving   p. 122
detoxification   p. 127
harm reduction   p. 122

life–skills-training approach   p. 145
passive smoking   p. 146
physical dependence   p. 122
placebo drinking   p. 131
problem drinking   p. 125
psychoactive substances   p. 123
second-hand smoke   p. 146

self-help aids   p. 143
smoking-prevention
    programs   p. 143
social influence intervention
    p. 143
tolerance   p. 122
withdrawal   p. 122