Chapter 4. Factors Influencing Tobacco Use Among Women

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Introduction

The published work on smoking initiation, maintenance, and cessation, together with descriptive examinations of the trends and themes of cigarette marketing, has provided insights into why women start to smoke and why they continue. Numerous scholars (e.g., Magnusson 1981; Bandura 1986; Sadava 1987; Frankenhaeuser 1991; Jessor et al. 1991; DeKay and Buss 1992) have argued that a thorough understanding of any behavior must be based on a comprehensive analysis of the broad social environment or cultural milieu surrounding the behavior, the immediate social situation or context in which the behavior occurs, the characteristics or disposition of the person performing the behavior, the behavior itself and closely related behaviors, and the interaction of all these conditions. Research on the social, cultural, and personal factors that influence women's smoking has been based on the social and psychological theory of the past several decades, and this research has burgeoned in recent years. Because smoking initiation among, maintenance and cessation among, and tobacco marketing to women have been studied by investigators using a variety of disciplinary perspectives and approaches, no single organizing framework exists for addressing the question of why women smoke. The research has shown that like most behaviors, tobacco use or nonuse results from a complex mix of influences that range from factors that are directly tied to tobacco use (e.g., beliefs about the consequences of smoking) to those that appear to have little to do with tobacco use (e.g., parenting styles and school characteristics).

Factors Influencing Initiation of Smoking

Overview of Studies Examined

Nearly all first use of tobacco occurs before high school graduation, and because nicotine is addictive, adolescents who smoke regularly are likely to become adult smokers (U.S. Department of Health and Human Services [USDHHS] 1994). Research on smoking initiation has, therefore, focused on adolescents and has been informed by a wealth of behavioral studies. Predictors of use of tobacco and other substances (Conrad et al. 1992; Hawkins et al. 1992; USDHHS 1994) and theories of adolescents' use of such substances (Petraitis et al. 1995) point to a complex set of interrelated factors.

Many efforts have been made to provide either a theoretical basis or an integrated framework for examining influences on smoking initiation. As a step toward an integrated approach, Petraitis and colleagues (1995) suggested that factors affecting tobacco use can be classified along two dimensions—type of influence and level of influence. These authors suggested that three distinct types of influence underlie existing theories of tobacco use—social, cultural, and personal. Social influences include the characteristics, beliefs, attitudes, and behaviors of the persons who make up the more intimate support system of adolescents, such as family and friends. Cultural influences include the practices and norms of the broader social environment of adolescents, such as the community, neighborhood, and school. Personal influences include individual biological characteristics, personality traits, affective states, and behavioral skills. For each type of influence, three levels of influence—ultimate, distal, and proximal—have been defined by work in evolutionary biology (Alcock 1989), cognitive science (Massaro 1991), and personality theory (Marshall 1991). McKinlay and Marceau (2000a,b) have emphasized the importance of a broad new integration of approaches and multilevel explanations. The levels of influence affect the nature and strength of the type of influence. Ultimate influences are broad, exogenous factors that gradually direct persons toward a behavior but are not strongly predictive. Distal influences are intermediate or indirect factors that may be more predictive. Proximal influences, which are the most immediate precursors of a

behavior, are most predictive. The study of social, cultural, and personal domains among adolescents and the various levels of influence has undergone considerable theoretical development. This review of smoking initiation examined more than 100 studies in which tobacco use was an outcome variable. Selected characteristics and major gender-specific findings of the longitudinal studies are shown in Table 4.1.

The primary dependent variables analyzed in the studies differed greatly, ranging from initiation of smoking to amount smoked. The studies most relevant to this report were longitudinal investigations that examined gender-specific results related to smoking initiation among adolescents, including predictors of smoking initiation (Ahlgren et al. 1982; Brunswick and Messeri 1983–84; Skinner et al. 1985; Charlton and Blair 1989; McNeill et al. 1989; Simon et al. 1995), pathways leading to smoking initiation (Flay et al. 1994; Pierce et al. 1996; Pallonen et al. 1998), and predictors of both initiation of and escalation to regular smoking (Chassin et al. 1984, 1986; Santi et al. 1990–91). A few longitudinal studies addressed only escalation to regular smoking (Semmer et al. 1987; Urberg et al. 1991; Hu et al. 1995a). Some cross-sectional studies that compared students who had tried smoking with those who had never tried smoking are also discussed in this text because adolescent smokers are usually recent beginners (USDHHS 1994).

Many of the predictor variables were not defined comparably across studies. Even variables with the same labels may have actually been assessed with different measures. For example, some researchers who studied "school bonding" used attitudinal measures (e.g., attitudes toward school), whereas others used behavioral measures (e.g., truancy). Many studies also examined gender-specific differences in risk factors that predict the frequency or amount of cigarette smoking, not just the initiation of smoking (Kellam et al. 1980; Ensminger et al. 1982; Krohn et al. 1986; Lawrance and Rubinson 1986; Akers et al. 1987; Wills and Vaughan 1989; Waldron and Lye 1990; Bauman et al. 1992; Botvin et al. 1992; Rowe et al. 1992; Winefield et al. 1992; Kandel et al. 1994; Schifano et al. 1994; Sussman et al. 1994).

Social and Environmental Factors

Accessibility of Tobacco Products

Accessibility of tobacco products is an important environmental factor that influences smoking initiation by adolescents (Lynch and Bonnie 1994; USDHHS 1994; Forster and Wolfson 1998). In numerous surveys conducted since the late 1980s, youth often self-reported that their most common source of cigarettes was purchase from retail stores (Lynch and Bonnie 1994; USDHHS 1994; Centers for Disease Control and Prevention [CDC] 1996a,b; Forster and Wolfson 1998). Since the early 1990s, noncommercial or social sources (other minors, parents, older friends) have also been studied (Cummings et al. 1992; CDC 1996b; Forster et al. 1997). Evidence suggested, however, that much of the tobacco provided by minors to other minors was initially purchased from commercial sources by the adolescent donor (Wolfson et al. 1997). Some of these self-report surveys have found that adolescent girls may be less likely than boys to report usually purchasing their own cigarettes (CDC 1996b; Kann et al. 1998). Additionally, results from the Memphis Health Project (Robinson and Klesges 1997) indicated that girls were less likely than boys to view cigarettes as affordable and easy to obtain. Field research concerning minors' access began in the late 1980s and has generally concentrated on assessing rates of illegal sales of tobacco to minors from retail stores during compliance checks in which underage youth attempt to purchase tobacco products (DiFranza et al. 1987; USDHHS 1994; Forster and Wolfson 1998; Forster et al. 1998). Compliance check studies in which both girls and boys participated generally found that retailers were more likely to sell cigarettes to girls than to boys of the same age (Forster and Wolfson 1998).

Pricing of Tobacco Products

Although considerable research has been done on the effect of price on smoking among smokers (Wasserman et al. 1991; Hu et al. 1995b; Chaloupka and Grossman 1996; CDC 1998), little empirical research exists on the effect of price on smoking initiation. Lewit and Coate (1982) used cross-sectional survey data and found that a price increase appeared to affect the decision to become a smoker rather than the decision to smoke less frequently. They also found that the smoking behavior among young adults (20 through 25 years old) was more sensitive to price changes than that among older persons and that male smokers, particularly those aged 20 through 35 years, were quite responsive to price, whereas female smokers were essentially unaffected by price. Chaloupka (1990, 1991a,b) also found that women were much less responsive to price than were men, but, in contrast with the findings of Lewit and Coate (1982), Chaloupka found that adolescents and young adults

(aged 17 through 24 years) were less responsive to price than were older age groups. In a CDC (1998) study, data analyzed from 14 years of the National Health Interview Survey showed that a 10-percent increase in price led to a 2.6-percent reduction in the demand for cigarettes among males and a 1.9-percent reduction among females. Thus, females were less responsive to price, as other studies have also found.

Mullahy (1985) found that both the decision to smoke and the quantity of cigarettes consumed by smokers were negatively related to cigarette prices among both men and women. As in the Lewit and Coate (1982) study, Mullahy (1985) found that cigarette prices had a greater effect on the decision to smoke than they did on cigarette consumption. Similarly, he found that men were somewhat more responsive to price than were women (average elasticities of -0.56 and -0.39, respectively). Of the studies that examined price in relation to initiation, two (Lewit et al. 1997; Dee and Evans 1998) found a significant inverse relationship between price and smoking initiation, and one (DeCicca et al. 1998) found no significant relationship. Dee and Evans (1998) estimated the price elasticity of smoking initiation to be in the range of -0.63 to -0.77. This finding implied that for every 10-percent increase in the price of cigarettes, a 6.6- to 7.7-percent reduction in the onset of smoking would be expected. Lewit and colleagues (1997) found that a 10-percent increase in price reduced the onset of smoking by 9.5 percent.

Chaloupka (1992) explored whether differences existed in the impact of clean indoor air laws on cigarette demand among women and men. The results for women and men showed dramatic differences in their response to both clean indoor air laws and cigarette prices. Men living in states with clean indoor air laws were found to smoke significantly less, on average, than their counterparts living in states with no restrictions on smoking. The smoking behavior among women, however, was found to be virtually unaffected by restrictions on cigarette smoking. Increased cigarette prices were found to lower the average cigarette consumption among men, whereas cigarette prices had no impact on smoking among women.

Advertising and Promotion of Tobacco Products

Defining a self-image is an important developmental task during adolescence (French and Perry 1996). Attractive images of young smokers displayed in tobacco advertisements are likely to "implant" the idea of initiation of smoking behavior in adolescent minds as a means to achieve the desired self-image. Therefore, it is not surprising that adolescents generally notice and respond to messages in tobacco advertising and promotion. A study by Pollay and colleagues (1996) found that brand choices among adolescents were significantly related to cigarette advertising and that the relationship between brand choices and brand advertising was stronger among adolescents than among adults.

Gilpin and Pierce (1997) suggested that the tobacco industry's expanded budget for marketing and increased emphasis on marketing tactics that may be particularly pertinent to young people influenced rates of smoking initiation among adolescents. Results from the statewide California Tobacco Survey led Evans and associates (1995) to conclude that tobacco advertising and marketing may have a stronger effect on smoking initiation among adolescents than does exposure to peers and family members who smoke. On the basis of a study of 7th and 8th graders, Botvin and colleagues (1993) reported that exposure to tobacco advertising was predictive of current smoking status. A study performed in rural New England showed that one-third of 6th through 12th graders possessed cigarette promotional items (e.g., T-shirts, hats, and backpacks) (Sargent et al. 1997). Students who owned such items were 4.1 times as likely to be smokers as students who did not own these items. One study revealed that ownership of and willingness to use cigarette promotional items were less common among girls than among boys (Gilpin et al. 1997).

Although advertising is thought to influence smoking initiation, information about differential gender effects of tobacco advertising and promotion on smoking initiation is limited. For a more detailed discussion of the relationship between historic trends in tobacco marketing targeted to women and time trends in smoking among girls and young women, see "Influence of Tobacco Marketing on Smoking Initiation by Females" later in this chapter.

Parental Hostility, Strictness, and Family Conflict

Study results on the effect of parental strictness on smoking initiation among adolescents have been conflicting. Some studies found that strictness and hostility of parents toward their children increased the risk for smoking initiation among adolescent boys (e.g., Chassin et al. 1984). However, other studies concluded that perception of parental strictness by adolescent children did not contribute to smoking initiation (e.g., McNeill et al. 1989).

Table 4.1. Longitudinal studies with gender-specific findings on beliefs, experiences, and behaviors related to smoking initiation

Study	Location	Study period	Study type or source	Population		
				Age/grade at study entry	Racial or ethnic origin	Sample size*
Aaron et al. 1995	Pittsburgh, Pennsylvania	3 years	School	12–16 years	73% white, 24% black, 3% Hispanic or Asian	1,245
Abernathy et al. 1995	Calgary, Alberta	4 years	School	Grade 6	Not specified	3,567
Ahlgren et al. 1982	Suburban Minneapolis, Minnesota	1 year	School	10–13 years (grades 5 and 6)	"Mostly white"	≤ 625
Akers et al. 1987	Midwestern United States	5 years	School	12–13 years and 16–17 years (grades 7 and 12)	Not specified	≤ 454
Aloise-Young et al. 1994	Los Angeles County and Orange County, California	1 year	School	Grade 7	Not specified	1,512
Ary and Biglan 1998	Lane County, Oregon	1 year	School	12–17 years (grades 7–10)	92% white, 1% black, 1% Asian, 3.5% American Indian	≤ 801
Best et al. 1995[†]	Southeastern Ontario	4 years	School	12–14 years (grade 6)	Not specified	≤ 3,566
Biglan et al. 1995	Northwestern United States	18 months	Home	14–17 years	91% white, 3% black, <2% Hispanic, 2% Asian, 2% American Indian	593
Botvin et al. 1992	New York State	2 years	School	Grades 7–9	91% white, 2% black, 2% Hispanic, 1% American Indian	~460
Brunswick and Messeri 1983–84	New York City	6–8 years	Not specified	12–17 years	100% black	283–380

Note: Studies that examined differences in tobacco-related messages in male- and female-oriented magazines are not included.
*Ranges are given for sample sizes that varied from analysis to analysis in the study. Upper limits indicate that it was unclear whether the reported number reflected the number of subjects in the study or the subset of subjects with sufficient data for analysis.
[†]Study was based on the same sample as Santi et al. 1990–91.

Dependent variables	Major gender-specific findings
Smoking behavior (six choices)	Females who were less physically active were more likely to initiate smoking. No relationship was found between physical activity and smoking initiation among males.
Never smoked vs. ever smoked	For females, smoking and reported self-esteem were strongly associated. No association was found between smoking and self-esteem for males.
Having ever smoked, smoking during 6-month period (new smoker, continuing smoker, former smoker)	No significant gender-specific differences were found for former or current smokers, parental smoking, self-esteem, or attitudes toward school.
Lifetime smoking status (1 = never, 6 = daily)	Adolescent girls were more influenced in their smoking behavior by boyfriends than adolescent boys were by girlfriends.
Role of group membership in peer influence on smoking behavior	No significant gender-specific differences were found in the comparison of group members' and group outsiders' susceptibility to peer influence on smoking behavior.
Number of cigarettes smoked in last week	No significant gender-specific differences in predictor variables were found. Predictor variables included pretest smoking rate; level of addiction to cigarettes; level of experience with cigarettes; socioeconomic status; parent, sibling, and peer smoking behavior; use of alcohol and marijuana; number of offers to smoke received; and intention to smoke.
Never smoked, tried once, smoked more than once during 12 months	For females, a higher score on the following factors was related to higher risk of smoking initiation: rebelliousness, rejection of adult authority, personal dissatisfaction, and peer approval. For males, only rebelliousness and rejection of adult authority were associated with higher risk of smoking initiation. Within the same rebelliousness score, females were significantly more likely than males to make the transition from nonsmoking to smoking.
Smoking frequency during last 24 hours and last month, number of years of smoking, average number of cigarettes / day	No significant gender-specific differences were found in adolescent problem behavior, the social context of the family environment, and the peer social context, as predictor variables.
Lifetime smoking status (1 = never, 10 = >1 pack / day)	Girls in grade 7 who perceived that one-half of persons their age smoked were more likely to be smokers in grade 9 than were boys in grade 7 who reported the same perception.
Initiation of smoking over 6–8 years	Five domains of predictors (personal background, school achievement, family-peer orientations, psychogenic orientations, and health attitudes and behaviors) were examined. Overall, the studied adolescent behaviors and attitudes better predicted smoking among females than among males.

Table 4.1. Continued

Study	Location	Study period	Study type or source	Population		
				Age/grade at study entry	Racial or ethnic origin	Sample size*
Brunswick and Messeri 1984	New York City	6–8 years	Population	12–17 years	100% black	283–380
Burke et al. 1997	Australia	9 years	School-based	9 years at study entry	Not specified	583–1,565
Charlton and Blair 1989	Northern England	4 months	School	12–13 years	Not specified	1,390
Chassin et al. 1984‡	Midwestern United States	1 year	School	12–17 years (grades 6–11)	96% white	2,818
Chassin et al. 1986‡	Midwestern United States	1 year	School	12–17 years (grades 6–11)	96% white	≤ 2,155
Chassin et al. 1990‡	Midwestern United States	4 years	Mail	12–17 years	96% white	1,844–3,238
Chassin et al. 1992‡	Midwestern United States	8 years	School or mail	12–17 years (grades 6–11)	97% white	765
Cohen et al. 1994	Los Angeles, California (metropolitan area)	3 years	School	Cohort 1: 13 years (grade 5) Cohort 2: 15 years (grade 7)	Cohort 1: 39% white, 4% black, 30% Hispanic, 15% Asian Cohort 2: 40% white, 4% black, 28% Hispanic, 15% Asian	1,376

*Ranges are given for sample sizes that varied from analysis to analysis in the study. Upper limits indicate that it was unclear whether the reported number reflected the number of subjects in the study or the subset of subjects with sufficient data for analysis.
‡Studies were based on the same sample.

Dependent variables	Major gender-specific findings
Initiation of smoking over 6–8 years	Psychogenic factors and differential socialization influences were analyzed to determine their role in the observed link between school achievement and smoking: smoking was mediated by psychogenic factors only for girls. Males who expressed lower social expectancy were more likely to initiate smoking, but this relationship was not a mediating factor for school achievement and smoking.
Never smoked vs. ever smoked	Clustering of adverse health behaviors among young female and male smokers was observed. For females, smoking, unsafe drinking, low physical activity, and lower fiber intake showed clustering. For males, smoking, unsafe drinking, and higher fat intake showed clustering, but physical activity and fiber intake did not.
Initiation of at least trial smoking during 4-month period (no, yes)	Four variables were significantly related to smoking initiation for females: having at least one parent who smoked, holding positive views on smoking, being aware of at least one cigarette brand, and having a best friend who smoked. None of the variables was consistently related to smoking initiation for males.
Initiation of at least trial smoking over 1 year, transition over 1 year from having tried smoking to smoking regularly (no, yes)	Male experimenters who were at risk of becoming regular smokers were more prone to deviance than girls were.
Initiation of at least trial smoking over 1 year, transition over 1 year from having tried smoking to smoking regularly (no, yes)	For persons who had never smoked at baseline, the effects of parental smoking were significant only for girls. Among experimenters at baseline, girls who perceived their friends as having positive attitudes about smoking were more likely to become regular smokers. For initial experimenters, girls whose friends had lower expectations of them were more likely to become regular smokers, whereas boys whose friends had higher expectations of them were more likely to become regular smokers.
Current smoking status (0 = nonsmoker, 1 = weekly smoker)	No significant gender-specific differences were found in the assessment of adolescent smoking increasing the risk for adult smoking.
Initiation and increase in smoking during 6-year period	Low socioeconomic status places girls at higher risk for smoking than boys.
Initiation of smoking over 4 years (cohort 1) and 3 years (cohort 2) of follow-up	Perceptions of risk factors for alcohol and tobacco use and parenting behaviors were compared in girls and boys. Children who reported more time spent with parents and who communicated more frequently with parents had lower initiation rates for alcohol and tobacco use in the last month. Disruptive behavior increased the chances of tobacco use in the last month. Boys reported higher levels of disruptive behavior. Girls reported being monitored more by parents and having higher levels of communication with parents.

Table 4.1. Continued

Study	Location	Study period	Study type or source	Population		
				Age/grade at study entry	Racial or ethnic origin	Sample size*
Dinh et al. 1995	Washington State	4 years	School	Grade 5	87% white, 5% mixed	≤ 1,593
Distefan et al. 1998	United States	4 years	Population Telephone and mail	12–18 years	Not specified	4,149
Ensminger et al. 1982	Chicago, Illinois	10 years	School	Grade 1	100% black	≤ 705
French et al. 1994	Minnesota	4 years	School	Grades 7–10	87% white	1,705
Green et al. 1991	Glasgow, Scotland	20 years	Home and mail	15, 35, and 55 years	Not specified	722–846
Hibbett and Fogelman 1990	England	23 years	Not specified	Newborn and 7, 11, 16, and 23 years	Not specified	≤ 5,663
Hu et al. 1995a	San Diego and Los Angeles, California	2 years	School	Grade 7	32.5% white, 15.5% black, 35.5% Hispanic, 16.5% Asian or other	2,433
Hunter et al. 1987	Bogalusa, Louisiana	2 years	School	8–17 years	67% white, 33% black	≤ 2,380
Kandel et al. 1994	New York State	19 years	In-home interviews	Cohort 1: Grades 10 and 11	Not specified	192
	United States	19 years	In-home interviews	Cohort 2: 10–18 years	Not specified	796
Kellam et al. 1980	Chicago, Illinois	10 years	School	Grade 10	100% black	≤ 705

*Ranges are given for sample sizes that varied from analysis to analysis in the study. Upper limits indicate that it was unclear whether the reported number reflected the number of subjects in the study or the subset of subjects with sufficient data for analysis.

Dependent variables	Major gender-specific findings
Weekly smoking (no, yes)	Compared with girls, boys in grade 5 who perceived smokers as leaders were more likely to report weekly smoking in grade 9. In grade 5, boys who perceived smokers as dirty and "uncool" were less likely to report weekly smoking in grade 9 than were girls.
Progression from never smoked to experimenter or from experimenter to current smoker	No significant gender-specific differences in parental influences on adolescent smoking initiation were found.
Daily smoking (0 = less than daily, 1 = daily)	No significant gender-specific differences were found in frequency of cigarette use, and only slight differences were found in the relationship between the independent variables and cigarette use. For males, early shyness and aggressiveness related to later cigarette use.
Transition from nonsmoking to regular smoking at 1-year follow-up	Girls who dieted or who were worried about their weight were more likely to initiate smoking than were girls who did not have these concerns. For boys, weight concerns and dieting were not significantly related to smoking initiation.
Daily smoking (no, yes)	Average weekly smoking was higher among male smokers than among female smokers.
Daily smoking status (0 = nonsmoker, 4 = >30 cigarettes / day)	Compared with nontruants, truants of both genders were more likely to be smokers. This trend appeared to be more pronounced for females.
Smoking frequency (0 = never, 3 = regular smoking) over four waves	The effects of friends' smoking were more pronounced for females than for males. An increase in the influence of friends was more pronounced for females than for males.
Ever tried smoking (no, yes)	Gender and racial groups had different responses for the influence of friends and family on smoking behavior. Black females seemed to be less influenced by the smoking behavior of their female siblings, mother, and father than were white females. Black males seemed to be less influenced by the smoking behavior of their fathers and sisters than were white males.
Cohort 1: ever smoked (no, yes), smoked in last year (no, yes) Cohort 2: ever smoked (no, yes), smoked in last 3 months (no, yes)	Maternal smoking during pregnancy was significantly related to the child's smoking 13 years later. Maternal smoking during pregnancy had a stronger influence on daughters than on sons.
Lifetime smoking status (1 = never, 5 = ≥ 1 pack / day)	A strong association was found between teenage social involvement and drug use, including cigarette smoking, for males. This association was not found for females.

Table 4.1. Continued

Study	Location	Study period	Study type or source	Population		
				Age/grade at study entry	Racial or ethnic origin	Sample size*
Killen et al. 1997	Northern California	3–4 years	School	15 years (mean) (grade 9)	45% white, 3% black, 15% Hispanic, 23% Asian, 3% Pacific Islander, 2% American Indian, 6% other	1,026
Lawrance and Rubinson 1986	Midwestern United States	≤ 8 months	School	Grades 6–8	Not specified	≤ 554
McCaul et al. 1982	Moorhead, Minnesota	1 year	Clinic, home	Grades 7 and 8	White	297
McGee and Stanton 1993§	Dunedin, New Zealand	15 years	Clinic, home	9 years	Not specified	719
McNeill et al. 1989	Bristol, England	30 months	Clinic, home, or school	11–13 years	Not specified	1,574
Mittelmark et al. 1987	Minneapolis and St. Paul, Minnesota (metropolitan area)	2 years	School	Grades 7–11	Not specified	462
Pederson et al. 1998	Scarborough, Ontario	2 years	School	Grade 8	Not specified	1,533
Pierce et al. 1996	United States	4 years	Teenage Attitudes and Practices Surveys I and II	12–18 years	71% white, 17% black, 8% Hispanic, 4% Asian or other	4,500
Pulkkinen 1982	Finland	12 years	School	8 years	Not specified	≤ 135
Reynolds and Nichols 1976	United States	1 year	Mailed questionnaire	Grade 12	Not specified	712–852
Rowe et al. 1992	Midwestern United States	8 years	School, mail, or telephone	Grades 6–12	96% white	≤ 4,156

*Ranges are given for sample sizes that varied from analysis to analysis in the study. Upper limits indicate that it was unclear whether the reported number reflected the number of subjects in the study or the subset of subjects with sufficient data for analysis.

§Study was based on the same sample as the studies by Stanton and Silva 1991, 1992 and Stanton et al. 1995.

Dependent variables	Major gender-specific findings
Smoking (lifetime exposure)	Among nonsmokers at baseline, girls and boys who had more friends who smoked were more likely to try smoking. Girls who had higher sociability scores were more likely to try smoking, whereas boys with higher levels of depression were more likely to try smoking.
Lifetime smoking status (never smoked, trial smoking, current smoker)	No significant gender-specific differences in social and emotional variables were found.
Smoking (at least once a week) vs. nonsmoking (all others)	No significant gender-specific differences were found in the predictor variables studied, including the smoking behaviors of students' friends and family and students' school behavior, beliefs about smoking, and intentions to smoke in the future.
At least trial smoking by age 13 years (no, yes), continued smoking between ages 13 and 15 years (no, yes)	Compared with boys, girls were 1.5 times more likely to continue smoking from age 13 to 15 years. Girls who reported no smoking at age 13 years were more likely than boys to smoke at age 15 years.
Initiation of at least trial smoking over 30-month period (no, yes)	Being a female was the second strongest predictor of smoking initiation after previous experimentation with cigarettes.
Initiation of more than experimental smoking over 2-year period (no, yes)	Females who began to smoke were more likely to have siblings who smoked, have a positive image of smokers, believe less that adults should be role models regarding smoking, and have less-educated parents. Males who began to smoke were more independent, less worried about health risks, and less involved in decision making in their families.
Current smoker, experimental smoker, former smoker, nonsmoker	For females, higher levels of depression were associated with greater use of tobacco.
Experimentation with smoking, established smoking	Boys were more likely than girls to experiment with cigarettes.
Current smoking status (never smoked, experimental smoker, former smoker, occasional smoker, regular smoker)	Girls tended to be more susceptible to the modeling effects of sisters, peers, and parents in smoking and drinking.
Smoking frequency (from 0 to >2 packs / day)	Smokers were less well adjusted than nonsmokers and tended to be more involved in antisocial activities. These relationships were stronger for females than for males.
Lifetime smoking status (1 = never smoked, 2 = trial smoking, 3 = smoked at least monthly, 4 = former smoker)	In the prevalence-driven model, the rate of transition from experimenter to regular smoker was higher for females than for males.

Table 4.1. Continued

Study	Location	Study period	Study type or source	Population		
				Age/grade at study entry	Racial or ethnic origin	Sample size*
Santi et al. 1990–91[Δ]	Southwestern Ontario	6 years	School	Grade 6	Not specified	1,614
Santi et al. 1994	Southwestern Ontario	3 years	School	11.5 years (mean) (grade 6)	Not specified	≤ 3,884
Semmer et al. 1987	Berlin and Bremen, Germany	2 years	School	13.5 years (mean) (grades 7 and 8)	Not specified	712–760
Simon et al. 1995	San Diego and Los Angeles, California	1 year	School	13 years (grade 7)	57% white, 3% black, 24% Hispanic, 9% Asian, 7% other	836
Skinner and Krohn 1992[¶]	Midwestern United States	5 years	School	13–18 years (grades 7–12)	Not specified	172–182
Skinner et al. 1985[¶]	Midwestern United States	3 years	School	grades 7–12	Not specified	≤ 426
Stanton and Silva 1991**	Dunedin, New Zealand	6 years	Clinic, school, or home	9 years	5.4% Maori or Polynesian origin	734–779
Stanton and Silva 1992**	Dunedin, New Zealand	6 years	Clinic, school, or home	9 years	5.4% Maori or Polynesian origin	734–779
Stanton et al. 1995**	Dunedin, New Zealand	18 years	Clinic, school, or home	9 years	3% Maori or Polynesian origin	546–705

*Ranges are given for sample sizes that varied from analysis to analysis in the study. Upper limits indicate that it was unclear whether the reported number reflected the number of subjects in the study or the subset of subjects with sufficient data for analysis.
[Δ]Study was based on the same sample as Best et al. 1995.
[¶]Studies were based on the same sample.
**Studies were based on the same sample as McGee and Stanton 1993.

Dependent variables	Major gender-specific findings
Initiation of at least experimental smoking over 2-year period (no, yes)	Males started smoking earlier than females, but females reported higher rates of initiation from grade 7 to the end of grade 9 than did males.
Transition to more smoking over 1-year period (no, yes)	No significant gender-specific differences were found in the adolescent dispositions of self-definition, social compliance, and affect regulation facilitating transitions in stages of smoking.
Initiation of at least experimental smoking over 6-month period (no, yes)	Females were more likely than males to be influenced by their friends' smoking.
Initiation of at least experimental smoking over 1-year period (no, yes)	High scores on risk taking had a stronger relationship to smoking for females than for males.
Lifetime smoking status (1 = never, 6 = daily)	The social process model was more useful in accounting for the dynamics associated with cigarette use for females than for males. Lack of commitment to education and activities were associated more with female deviance than with male deviance.
Initiation of at least experimental smoking over 2-year period (no, yes)	Females who associated with female peers who smoked were more likely to start smoking than were females who had less association with female peers who smoked.
Smoked in last 2 years (no, yes)	Effect of friends smoking was more related to boys' smoking than girls' smoking in the previous 2 years at ages 9 and 15 years. At age 15 years, girls were more likely than boys to be daily smokers if they observed friends smoking, if their brothers smoked, or if they had no preference for nonsmoking friends.
Smoked in last 2 years (no, yes)	Results concerning the influence of parents and friends were very similar for girls and boys. Recent smoking cessation by mothers seemed to delay smoking among daughters but not among sons.
Smoked in last 2 years (no, yes)	Delinquency was associated with a higher risk for girls. Aggressive behavior in girls may put them at a higher risk for succumbing to the peer pressure to smoke. For boys, having a lower socioeconomic status, receiving low social support from the family, having an older father, and obtaining higher scores for inattention were associated with a higher risk for smoking initiation.

Table 4.1. Continued

Study	Location	Study period	Study type or source	Population		
				Age/grade at study entry	Racial or ethnic origin	Sample size*
Sussman et al. 1987	Los Angeles, California (metropolitan area)	1 year	School	13 years (grades 7 and 8)	57% white, 9% black, 24% Hispanic, 9% Asian	≤ 874
Sussman et al. 1994	San Diego and Los Angeles, California	1 year	School	13 years (mean) (grade 7)	60% white, 7% black, 27% Hispanic, 6% Asian or other	931
Swan et al. 1990	Derbyshire, England	10 years	School	11.7–12.7 years	Not specified	6,000
Urberg 1992††	Midwestern United States	1 year	School	17 years (mean) (grade 11)	96% white	≤ 324
Urberg et al. 1991††	Midwestern United States	1 year	School	14 and 17 years (mean) (grades 8 and 11)	96% white	309
Wills 1986‡‡	New York City	2 years	School	12–14 years (grades 7 and 8)	46% white, 23% Hispanic	300–600
Wills and Vaughan 1989‡‡	New York City	2 years	School	12–14 years (grades 7 and 8)	50% white, 20% black, 20% Hispanic	≤ 1,576
Winefield et al. 1992, 1993	Australia	9 years	Mailed questionnaire	15.6 years (average) (grades 10–12)	Not specified	≤ 478
Wu and Anthony 1999	Atlanta, Georgia	Up to 5 years	School	Ages 8–14	24% white, 75% black, 1% Hispanic, American Indian, or Asian	1,731

*Ranges are given for sample sizes that varied from analysis to analysis in the study. Upper limits indicate that it was unclear whether the reported number reflected the number of subjects in the study or the subset of subjects with sufficient data for analysis.
††Studies were based on the same sample.
‡‡Studies were based on the same sample.

Dependent variables	Major gender-specific findings
Initiation of at least experimental smoking over 1-year period (no, yes)	Females were not as influenced as males by adult approval of smoking and by risk-taking preferences. Females were more aware of health consequences than males. Among white females, availability of cigarettes was a predictor of smoking initiation. For Hispanic females, low achievement in school was a strong predictor. For black males, peer pressure was a predictor, and for Asian males, difficulty refusing offers of cigarettes and intentions to smoke in the future were predictors.
Lifetime smoking status (1 = never, 8 = heavy daily)	No significant gender-specific differences for the predictor of group self-identification were found.
Experimental smoking, regular smoking	Maternal smoking was associated with a higher rate of smoking initiation for females. Females who were involved in organized sports were less likely to start smoking, whereas involvement in sports did not affect smoking initiation in males. Females who were involved in organized social activities were more likely to start smoking than were males.
Number of cigarettes smoked in last week	Males were more influenced than females by peer smoking behavior.
Differences between number of cigarettes smoked weekly in year 1 and year 2	No significant gender-specific differences in the influence of best friends and social crowd on smoking were found.
Smoking summary score (1–5)	Socially related measures had a higher association with substance use for females than for males.
Lifetime smoking status (1 = never, 5 = weekly)	The association between peer support and smoking was strong for females but weak for males.
Current smoking status (nonsmoker, light smoker, heavy smoker)	No significant gender-specific differences in the psychological aspects of smoking (self-esteem, depressive affect, negative mood, hopelessness, psychological disturbance, locus of control, social alienation) were found.
Initiation of smoking	Antecedent smoking was associated with increased risk of depressed mood but not vice versa. Gender-specific findings were not presented, but gender was not an independent prediction of initiation in multivariate analyses.

Biglan and coworkers (1995) studied a sample of 643 adolescents at three time intervals. Family conflict at time 1 predicted inadequate parental monitoring at time 2, and inadequate parental monitoring, association with deviant peers, parental smoking, and peer smoking at time 2 predicted smoking at time 3. The model was the same for girls and boys, and no significant differences were found in the path coefficients. These findings suggested that family conflict influences tobacco use indirectly and that the mechanism among girls and boys is similar.

Level of Parental Supervision, Involvement, or Attachment

Parents who closely supervise their children know where their children are and monitor what they are doing. Results of some studies suggested that close supervision deters smoking among adolescents (Chassin et al. 1986; Mittelmark et al. 1987; Radziszewska et al. 1996; Jackson et al. 1997), and findings in two studies suggested that parental supervision may be a greater deterrent among girls than among boys (Skinner et al. 1985; Krohn et al. 1986). This pattern might be explained by the finding that girls are generally monitored more closely than are boys (Cohen et al. 1994). One study revealed that authoritative parenting styles influenced children's smoking initiation independently of parental smoking status (Jackson et al. 1994). However, other studies showed no link between parental supervision and adolescent smoking (e.g., Krohn et al. 1983).

Parental involvement implies the active participation of parents in their children's lives. A longitudinal study of fifth and seventh graders found lower rates of smoking initiation among children who reported that their parents spent more time with them and communicated with them more frequently (Cohen et al. 1994). Girls tended to have better communication with their parents than did boys, but the relationship between interaction with parents and smoking initiation was not reported separately by gender. In one study, parental involvement in their children's school, religious, and athletic activities decreased the risk for smoking among both girls and boys (Krohn et al. 1986). In another study, children who perceived their parents as generally unconcerned about their social activities were slightly more likely to increase their smoking over a one-year period (Murray et al. 1983). The results of two other studies suggested, however, that this relationship may exist for boys only (Mittelmark et al. 1987; Stanton et al. 1995).

Longitudinal studies have reported that the risk for smoking among adolescents increases as their emotional bonds and sense of attachment to parents weaken (Conrad et al. 1992). Findings in several studies suggested that weak attachment to parents and risk for smoking do not differ by gender (Ensminger et al. 1982; Krohn et al. 1986; Kumpfer and Turner 1990–91). One study of female college students found that poor father-daughter relationships (e.g., spending little time together or poor communication) correlated with the daughters' smoking (Brook et al. 1987).

Parental Smoking

Parents who smoke are more likely than those who do not to have children who smoke (Conrad et al. 1992; Jackson et al. 1997). Studies found that children in grades four through six (mean age, 11 years) were almost three times as likely to have smoked cigarettes in the past 30 days if they lived with an adult smoker (Morris et al. 1993) and that adolescents were about two times as likely to have smoked daily if one or both parents smoked (Green et al. 1991). One study found that adolescents whose parents had stopped smoking were about one-third less likely to have ever smoked than were those with parents who still smoked (Farkas et al. 1999). Several studies reported that girls and boys are equally susceptible to the effects of parental smoking (Chassin et al. 1984; Santi et al. 1990–91; Green et al. 1991; Glendinning et al. 1994) and to parental attitudes toward smoking (Ary and Biglan 1988). However, some researchers found differences in receptivity to parental smoking among girls and boys. One study showed that boys were more influenced by parental smoking than were girls (Sussman et al. 1987), but most of the studies suggested that girls may be more influenced than boys (Chassin et al. 1986; Charlton and Blair 1989; Swan et al. 1990; van Roosmalen and McDaniel 1992; Flay et al. 1994; Kandel et al. 1994; Hu et al. 1995a; Robinson et al. 1997).

The effects of maternal smoking may differ among girls and boys. In three studies, maternal smoking tended to have a slightly greater effect on subsequent smoking among girls than among boys (Ahlgren et al. 1982; Pulkkinen 1982; Bauman et al. 1992). This finding was confirmed in a study of 201 parent-child triads that used independent reporting of smoking status from each member of the domestic group (Kandel and Wu 1995), unlike the majority of studies, which used the child's report about parents' smoking. Stanton and Silva (1992) reported that recent smoking cessation among mothers apparently

helped to delay and perhaps deter smoking among daughters but not among sons. Thus, adolescent girls may be more likely than adolescent boys to model their smoking on their mothers' smoking behavior. In one study, however, maternal smoking significantly predicted smoking among sons but not among daughters (Skinner et al. 1985).

Sibling Smoking

One study reported that smoking among older siblings had little or no influence on smoking among their younger sisters and brothers (Ary and Biglan 1988), but other evidence suggested that young siblings are influenced by sibling smoking (Swan et al. 1990; Conrad et al. 1992; Daly et al. 1993). The effect was equal among girls and boys in one study (Santi et al. 1990–91). In other studies, the effect was stronger among girls (Chassin et al. 1984; Mittelmark et al. 1987; van Roosmalen and McDaniel 1992; Pierce et al. 1993) or among boys (Brunswick and Messeri 1983–84; Stanton and Silva 1991). The pattern may vary by race or ethnicity (Hunter et al. 1987); in particular, African American girls appeared to be less susceptible than white girls to the influence of siblings, other family members, and peers who smoked. At present, no conclusion can be drawn about the comparative susceptibility of girls and boys to sibling smoking.

Peer Smoking

In many studies, one of the strongest risk factors for smoking is exposure to peers, especially close friends, who smoke (USDHHS 1994; Meijer et al. 1996; Gritz et al. 1998). Friends' smoking was predictive of some phase of smoking in all but 1 (Newcomb et al. 1989) of 16 longitudinal studies reviewed by Conrad and associates (1992). Results of many studies suggested that involvement with peers who smoke has a similar effect among girls and boys (Palmer 1970; McCaul et al. 1982; Pulkkinen 1982; Chassin et al. 1984, 1986; Gottlieb and Baker 1986; Krohn et al. 1986; Mittelmark et al. 1987; Sussman et al. 1987; Santi et al. 1990–91; Stanton and Silva 1992; Urberg 1992; van Roosmalen and McDaniel 1992; McGee and Stanton 1993; Pierce et al. 1993; Glendinning et al. 1994). Findings in other studies suggested that peer smoking affects adolescent girls and boys somewhat differently. In a few studies, boys who smoked had more friends who were smokers (Morris et al. 1993) and were more influenced by the smoking-related attitudes (Chassin et al. 1984) and behaviors of their peers than were girls who smoked (Urberg et al. 1991). However, most of the studies that reported gender-specific differences suggested that girls are more influenced by peer smoking than are boys (Semmer et al. 1987; Charlton and Blair 1989; Pirie et al. 1991; Waldron et al. 1991; Rowe et al. 1992; Sarason et al. 1992; Skinner and Krohn 1992; Hu et al. 1995a). Akers and colleagues (1987) reported that adolescent girls were more influenced in their smoking behavior by their boyfriends than adolescent boys were influenced by their girlfriends. However, Skinner and associates (1985) found that the initiation of smoking among girls tended to coincide with increasing involvement with other girls who smoked but not with boys who smoked.

Bauman and Ennett (1994) contended that the examination of simple peer associations may be less revealing than the exploration of social networks among peers. These researchers and their colleagues pointed to the homogeneity of adolescent friendship cliques with regard to smoking and noted that, in a formal network analysis of 87 such cliques, most were composed entirely of nonsmokers (Ennett et al. 1994). The study results suggested that cliques may contribute more to the maintenance of nonsmoking status than to the initiation of smoking. These findings were strongest among all-female and among all-white cliques. In another analysis of the same data, the authors pointed out that adolescents who did not belong to a clique had a higher probability of smoking than did adolescents who belonged to a clique (Ennett and Bauman 1993).

Perceived Norms and Prevalence of Smoking

Adolescents whose close peers smoke tend to perceive that smoking is far more normative than it actually is (Conrad et al. 1992; USDHHS 1994). One study revealed that seventh-grade girls estimated the overall incidence of smoking among their peers at significantly higher levels than did seventh-grade boys (Robinson and Klesges 1997). At least three studies have examined gender-specific differences in perceived social norms of adolescent smoking and smoking initiation. In two studies, significantly more females than males reported social norms as a reason for experimenting with cigarettes or beginning to smoke (Botvin et al. 1992; Sarason et al. 1992). In the third study, the opposite gender-specific effect was observed (Chassin et al. 1984).

Perceived Peer Attitudes Toward Smoking

In one study of a multiethnic sample of adolescents, perceived approval of smoking by one's three best friends was significantly associated with susceptibility to smoking and ever smoking (Gritz et al. 1998). In other studies, even though boys reported more often than girls that their friends' approval of smoking was an important influence on their smoking, peer smoking appeared to be an equally strong risk factor for smoking among girls and boys (Pierce et al. 1993; Flay et al. 1994).

Strong Attachment to Peers

Among adolescents, strong bonds with parents tend to deter smoking, and strong bonds with peers tend to promote smoking. Indeed, Conrad and colleagues (1992) found that in nine longitudinal studies, adolescents were more likely to experiment with cigarettes or to start smoking regularly if they had developed close emotional attachments to other adolescents, spent more and more time with friends, had a large number of close friends, reported that agreement with peers was increasingly important, or had a boyfriend or girlfriend (Kellam et al. 1980; Ahlgren et al. 1982; Krohn et al. 1983; Murray et al. 1983; Chassin et al. 1984; Skinner et al. 1985; Semmer et al. 1987; Sussman et al. 1987; McNeill et al. 1989). Several studies have reported no gender-specific differences in the effects of peer bonds on smoking (McNeill et al. 1989; Swan et al. 1990; Sussman et al. 1994). One study among African Americans, however, showed that the number of close friends an adolescent reported having was a predictor of smoking initiation for boys only (Brunswick and Messeri 1983–84). In another study, positive social events and peer support increased the likelihood of smoking among more girls than boys (Wills 1986), and Best and colleagues (1995) suggested that among adolescents for whom peer approval is especially important, girls may be more likely than boys to smoke.

Interaction of Social Influences

Flay and associates (1994) tested a model that examined how the following factors interact to influence smoking initiation among adolescents: (1) friends' smoking, (2) parental smoking, (3) expectation of negative outcome from smoking, (4) perceived friends' approval of smoking, (5) perceived parental approval of smoking, (6) refusal self-efficacy (i.e., confidence in one's ability to resist temptations to try smoking), and (7) intention to smoke or not to smoke. The findings showed that friends' smoking influenced smoking initiation both directly and indirectly and that friends' smoking was a stronger influence than parental smoking. Parental smoking had a stronger effect among girls than among boys, but this gender-specific influence was tempered by parental approval or disapproval of smoking. Disapproval mediated the influence of parental smoking among girls but not among boys, and parental approval was an important predictor that girls would start to smoke. These results are consistent with other findings that girls may be more susceptible than boys to social influences, especially parental influences (see "Parental Smoking" earlier in this chapter). No significant gender-specific differences were observed in how the pathways from self-efficacy and expectations of negative outcome affected smoking initiation.

Previous research suggested that parental influence, in general, remains constant or decreases but that the influence of peers increases as adolescents develop (e.g., Krosnick and Judd 1982). A more recent study indicated that the pattern of change in parental and peer influences on smoking may differ among girls and boys (Hu et al. 1995a). In this longitudinal study, data were collected at four time points from grades seven through nine. Smoking status was predicted by using previous smoking status and the effects of time, friends' smoking, and parental smoking. In general, the effects of friends' smoking were stronger than the influence of parental smoking, and the effects of friends' smoking appeared to increase over time, whereas the influence of parental smoking remained fairly constant. Although parental smoking predicted initiation and escalation of smoking equally, friends' smoking was more predictive of initiation than of escalation. The effects of friends' smoking were stronger among girls than among boys, and the tendency for the influence of friends to increase with time was also more noticeable among girls.

Pederson and colleagues (1998) examined the dose-response relationships between various social variables (e.g., maternal smoking, parental approval of smoking, sibling smoking, and friends' smoking) and smoking status among eighth-grade students. The study revealed strong dose-response relationships between these social variables and smoking status for the entire group and, in most cases, among females and males when data were analyzed separately.

Personal Characteristics

Socioeconomic Status and Parental Education

Several studies have shown that low socioeconomic status puts adolescents at higher risk for smoking (Conrad et al. 1992; USDHHS 1994). At least three studies have examined whether the risk for smoking among daughters and sons is affected differently by the socioeconomic status of their parents. Findings in two studies suggested that low socioeconomic status places girls at higher risk than boys (Chassin et al. 1992; Glendinning et al. 1994). The third study produced a contrary finding, but it was conducted among college students, a group in which low socioeconomic status may have been underrepresented (Gottlieb and Baker 1986).

National surveys consistently showed that education (number of years of schooling) is inversely related to cigarette smoking among women and men (see Chapter 2). However, data from the Monitoring the Future Surveys provided little evidence of a gender-specific effect of parental education on risk for smoking among high school seniors for the period 1994–1998. Among seniors whose parents had not graduated from high school, females were more likely than males to smoke, but in general the prevalence of current smoking among both females and males differed little across level of parental education (see "Relationship of Smoking to Sociodemographic Factors" in Chapter 2 and Table 2.11).

Ferrence (1988) proposed a model of diffusion of innovations (Rogers and Shoemaker 1971) to help elucidate gender-specific differences in relation to initiation and cessation of smoking. In general, persons with better economic resources, more education, and greater power adopt new ideas and behaviors and accumulate material goods earlier than those with fewer such resources. This fact may explain why men historically started smoking before women did. Gender-specific differences in relation to economic resources, education, and power have changed over time in concert with changes in the roles of women in society. The first women to smoke were those who, by virtue of their resources, were considered avant-garde. Similarly, in recent decades, the reduction in smoking prevalence occurred first among persons having greater resources. This explanation is supported by theories on social roles (Dicken 1978, 1982; Deaux and Major 1987; Eagly 1987; Waldron 1991).

Behavioral Control

Theories on smoking and drug use (Petraitis et al. 1995) contend that persons may be unable to resist temptations to smoke if they are unable to control certain other behaviors, including tendencies to be impulsive, easily distracted, or aggressive or to exhibit type A behavior. Studies have shown that smoking was more common among (1) adolescents who reported getting into trouble at school (Krohn et al. 1986); (2) young adults who had been aggressive, quarrelsome, and impatient at age 8 years (Pulkkinen 1982); (3) young adults who as children did not solve problems reasonably, did not negotiate with others, and were not conciliatory toward others (Pulkkinen 1982); and (4) adults who demonstrated type A behavior (Forgays et al. 1993).

Results in several studies suggested that a lack of behavioral control plays a larger role in smoking among girls than among boys. Aggressive behavior may put girls at significantly higher risk than boys for succumbing to peer pressures to smoke (Stanton et al. 1995). In one study, young women, but not young men, were more likely to initiate smoking as adolescents if they focused more on short-term goals than on long-term goals (Brunswick and Messeri 1983–84).

Sociability

Adolescents who are shy or lack social skills may find it especially difficult to resist peer pressure to smoke. Studies indicated that adolescents may view smoking as a vehicle for entering a desired friendship group (e.g., Aloise-Young et al. 1994), but two studies suggested that this is true only among boys (Gottlieb and Green 1984; Allen et al. 1994). In a study of girl and boy smokers and nonsmokers, Allen and coworkers (1994) concluded that adolescent boys may have used smoking to cope with social insecurity, whereas adolescent girls who smoked were more socially competent and self-confident than were girls who did not smoke. Killen and colleagues (1997) also found that sociability was related to smoking initiation among adolescent girls.

Fatalism and External Locus of Control

Persons who have an external locus of control generally believe that their lives are controlled by external forces (e.g., fate or God) and may believe that they can do little to prevent negative events from affecting them. In one study, investigators found no link between locus of control during adolescence and

smoking during adulthood (Winefield et al. 1992). Other studies, however, suggested that fatalism and an external locus of control are associated with smoking initiation (Brunswick and Messeri 1984; Chassin et al. 1984).

Intelligence, Academic Performance, and Commitment to School

In their analysis of data from the 1990 California Youth Tobacco Survey, Hu and colleagues (1998) found that students who reported their performance in school as below average were more likely than better-than-average students to be current or former smokers. They found no gender-specific differences in the likelihood of being a former smoker or in attempts to stop smoking. An earlier study found that scores on tests of intelligence and readiness for school during first grade were not related to smoking among 16- and 17-year-old African American girls or boys (Kellam et al. 1980). Another study of adolescents reported that poorer academic achievement increased the risk for smoking among girls and boys, but that the importance of two achievement measures differed; reading test scores were stronger predictors among girls, whereas grade point average better predicted smoking among boys (Brunswick and Messeri 1983–84, 1984).

Weak commitment to school consistently predicts the initiation and progression of smoking among adolescents (Conrad et al. 1992). In one longitudinal study, investigators found no gender-specific difference in the effect of weak school bonds on subsequent smoking (Ensminger et al. 1982). However, three other studies suggested that commitment to school affects girls more strongly than it affects boys (Hibbett and Fogelman 1990; Waldron et al. 1991; Skinner and Krohn 1992), and one study reported the reverse (Chassin et al. 1984). Because of these conflicting findings, no conclusion can be drawn about gender-specific differences in relation to school bonds and adolescent smoking.

Rebelliousness, Risk Taking, and Other Health-Related Behaviors

Longitudinal studies of smoking consistently have shown that adolescents are at risk for smoking if they previously rebelled against rules, teachers, or adults in general (Mittelmark et al. 1987); opposed disciplinary rules at school (Murray et al. 1983); or tolerated deviant behavior in others (Chassin et al. 1984). Although adolescent rebelliousness appears to be less common among girls than among boys (Robinson and Klesges 1997), findings in some longitudinal studies suggested that rebelliousness and tolerance for unconventional behavior may affect smoking initiation among girls and boys equally (Skinner and Krohn 1992; Simon et al. 1995). However, several studies have shown that smoking was more highly correlated among girls than among boys in regard to the following characteristics: rebelliousness (Pierce et al. 1993), feelings of being decreasingly bound by laws and parental rules (Skinner et al. 1985), higher levels of both rebelliousness and rejection of adult authority (Best et al. 1995), and tolerance of deviant behavior (Chassin et al. 1984). Stanton and colleagues (1995) found that delinquency significantly increased the risk for smoking among girls but was not related to smoking among boys. One study found that 17-year-old girls were more likely than boys the same age to smoke experimentally if they went to bars, taverns, or nightclubs; had been in trouble with the police; or had been involved in fights (Waldron et al. 1991). Findings from this study paralleled earlier reports about rebelliousness (Sussman et al. 1987).

Sensation seeking has been defined as willingness to take risks for the sake of stimulation and arousal (Zuckerman et al. 1987). Sensation seeking and risk taking appear to be related to smoking among adolescents (Simon et al. 1995; Petridou et al. 1997; Wahlgren et al. 1997; Coogan et al. 1998).

Clustering of smoking and other unhealthy behaviors suggested the formation of a "risk behavior syndrome" during adolescence (Escobedo et al. 1997). This syndrome may emerge as early as elementary school (Coogan et al. 1998). Data from the National Health Interview Survey indicated that smoking aggregates with marijuana use, binge drinking, and fighting among African Americans, Hispanics, and whites of both genders (Escobedo et al. 1997). Other U.S. national survey data also showed a strong relationship between smoking and use of other substances, including alcohol, among girls and young women (see Chapter 2). A British study examined smoking status, exercise, and dietary behaviors among 14- and 15-year-old adolescents (Coulson et al. 1997). Smoking was associated with lower levels of exercise, lower consumption of fruits and vegetables, and greater consumption of high-fat foods. In addition, evidence from the Youth Risk Behavior Survey suggested that participating in interscholastic sports inhibits the development of regular and heavy smoking among adolescents (Escobedo et al. 1993). Furthermore, some studies reported that the more physically active and fit adolescent girls were, the less likely they were to initiate smoking (e.g., Waldron et

al. 1991; Aaron et al. 1995). A British study found that girls who had a teenage pregnancy were more likely to smoke cigarettes than were girls who had not been pregnant (Seamark and Gray 1998).

Results from the longitudinal Minnesota Heart Health Program provided evidence that smoking, physical inactivity, and poor dietary preferences cluster in childhood and tend to endure through adolescence (Kelder et al. 1994; Lytle et al. 1995). Similar clustering of smoking and other unhealthy behaviors were reported in an Australian study with follow-up on a cohort of persons aged 9 years through early adulthood (Burke et al. 1997). At age 18 years, smoking, excessive alcohol use, and poor dietary preferences were clustered among both women and men; physical inactivity was also part of the cluster among women.

Religiousness

Most studies on the relationship between religiousness and smoking suggested that religious beliefs are important in the decision of some persons not to smoke. After age 17 years, young women who attended church only occasionally were more than twice as likely to start smoking as were those who attended regularly (Daly et al. 1993). In general, more women than men report religious commitment, which appears to be associated with a lower rate of smoking among women (Reynolds and Nichols 1976; Brook et al. 1987; Grunberg et al. 1991; Waldron 1991). Study data indicated that among high school seniors of both genders, the prevalence of smoking is inversely related to the self-reported importance of religion (see "Relationship of Smoking to Sociodemographic Factors" in Chapter 2). In three studies that examined gender-specific differences in religious attitudes among adolescents, religion deterred smoking among females more than it did among males, and a lack of religious commitment contributed to smoking among females more than it did among males (Gottlieb and Green 1984; Krohn et al. 1986; Waldron et al. 1991). In contrast, Skinner and colleagues (1985) found that religiousness had no effect on smoking by either gender.

Self-Esteem

Adolescents who have poor self-esteem may have difficulty resisting pressures to smoke, especially if they believe that smoking will enhance their image. In some longitudinal studies, adolescents with low self-esteem were significantly more likely than those with high self-esteem to start smoking within the next year (Ahlgren et al. 1982; Simon et al. 1995). Other longitudinal studies, however, detected no link between self-esteem and subsequent smoking (Brunswick and Messeri 1983–84; Winefield et al. 1992). One study showed that girls who scored high on personal dissatisfaction (e.g., desire to have more friends, be thinner, or be less socially anxious) were more likely to smoke than were girls who appeared to be more personally satisfied (Best et al. 1995). This relationship between personal dissatisfaction and smoking was not observed among boys. Similar findings from another study suggested that self-esteem may be a factor in the smoking behavior among girls in grades six through eight but not among males in any grade (Abernathy et al. 1995).

Emotional Distress

Theories of smoking and drug use have suggested that persons may have difficulty resisting temptations to smoke if they are anxious, hostile, irritable, depressed, or psychologically distressed (Petraitis et al. 1995). Evidence of a link between emotional distress and smoking is mixed, however. Many of the studies have focused on adults, so it is not clear to what extent the findings can be extrapolated to smoking initiation, which generally occurs among adolescents. Some investigators have found no association between smoking, hopelessness, stress, nervousness, negative mood, psychological disturbances, or level of anxiety (Winefield et al. 1992; Simon et al. 1995). Others have found links between smoking and anger (Modrcin-McCarthy and Tollett 1993); stress (Wills 1986); stressful life events (Frone et al. 1994); depression (Pederson et al. 1998); and anxiety levels, physical complaints, and hostility (Forgays et al. 1993; Schifano et al. 1994). A study by Johnson and Gilbert (1991) reported that the intense feelings of anger and irritability were related to both smoking initiation and maintenance among African American adolescents, whereas among white adolescents these emotions were associated only with smoking initiation. One qualitative investigation reported that the most frequent reasons for smoking among girls in grades 10 and 11 were stress reduction and relaxation (Nichter et al. 1997). Although exceptions have been reported (Oleckno and Blacconiere 1990; Allen et al. 1994; Frone et al. 1994), findings in several studies suggested that symptoms of distress are more strongly associated with smoking among females than among males (Brunswick and Messeri 1984; Gottlieb and Green 1984; Knott 1984; Semmer et al. 1987; Lee et al. 1988; Waldron et al. 1991; Pierce et al. 1993).

Coping Styles

Two studies have examined whether there are gender-specific differences in the link between smoking levels and the way persons cope with their problems, but such differences do not appear to exist. In one study, MacLean and coworkers (1996) found no connection between smoking level during the past month and the frequency with which 17-year-old girls and boys used various strategies (e.g., getting angry) to cope with problems. In a study of 12-year-olds, Wills and Vaughan (1989) examined the relationship between current smoking and earlier tendencies to seek adult or parental help with problems, but they found no differences by gender in this relationship. These researchers did find that, among adolescents who had previously relied on peers for help with problems, girls were far more likely than boys to smoke, but it is unclear whether this effect related primarily to coping styles or to peer attachments.

Perceived Refusal Skills

Adolescents who are confident of their ability to resist pressures to smoke may be better able to avoid smoking than those who are not confident. Although girls may have stronger doubts about avoiding cigarette smoking in the future than do boys (van Roosmalen and McDaniel 1992), attempts to reduce those doubts appear to have the same effect among girls and boys. Findings in experimental studies suggested that refusal skills can be taught effectively to both girls and boys (Sallis et al. 1990), and results of longitudinal studies suggested that self-doubts about the ability to refuse offers to smoke affect girls and boys equally (Lawrance and Rubinson 1986; Flay et al. 1994). In one study, however, this finding was not true among all racial and ethnic groups; for 13-year-old Asian children who one year earlier had doubted their ability to refuse an offer of a cigarette, the prevalence of smoking was higher among boys than among girls (Sussman et al. 1987).

Previous Experimentation with Tobacco and Intention to Smoke

Findings in three longitudinal studies suggested that girls and boys who experiment with cigarettes during adolescence are at generally similar risk for progression from experimentation to regular smoking. In two of these studies, the investigators found no gender-specific differences in the link between experimental smoking during adolescence and regular smoking during early adulthood (Chassin et al. 1990; McGee and Stanton 1993). In the third study, the researchers found that the amount smoked at ages 10 through 13 years was strongly related to the amount smoked at ages 14 through 17 years and that the link between previous and current smoking may have been stronger among boys than among girls (Skinner and Krohn 1992). Two studies showed that girls and boys were equally likely to smoke if at least one year earlier they had thought they might smoke in the future (Ary and Biglan 1988; McNeill et al. 1989). In a large study of 4,500 adolescents, the lack of a firm decision not to smoke was a strong baseline predictor of both experimentation and progression to regular smoking (Pierce et al. 1996). However, intention was not as important as exposure to other smokers in influencing the transition from experimentation to regular smoking. No gender differences were found.

Susceptibility to Smoking

As smoking prevention moves toward use of more tailored and individualized programs, identifying precursors of smoking initiation becomes increasingly important. The ability to classify adolescents as being at higher or at lower risk for smoking initiation is critical to the development of appropriate intervention techniques.

Two theoretical concepts appear to be particularly useful for identifying adolescents at risk for smoking initiation: the transtheoretical model of change (Prochaska et al. 1992; Pallonen 1998; Pallonen et al. 1998) and susceptibility to smoking (Pierce et al. 1996). The transtheoretical model of change postulates gradual progression through a series of discrete stages of cognitive and behavioral change, simultaneously integrating constructs such as stages of change, decisional balance (pros and cons of smoking behavior), situational temptations to try smoking (Hudmon et al. 1997), and self-efficacy. Pallonen and colleagues (1998) proposed integration of the stages of adolescent smoking initiation and cessation. The four stages of smoking initiation are (1) acquisition-precontemplation, (2) acquisition-contemplation, (3) acquisition-preparation, and (4) recent acquisition. These stages have been validated in a sample of high school students. The scores for perceived advantages (pros) of smoking and temptations to try smoking were closely related to the stages of smoking initiation. The continuum based on the four stages of change appears to provide a concise and theoretically sound approach to smoking initiation in adolescent populations.

Susceptibility to smoking is a measure of intention to smoke. According to this concept, "susceptible" adolescents exhibit a lack of firm commitment not to smoke in the future. The construct of susceptibility to smoking has been used in the California Tobacco Survey and other studies; its rationale and validation have been extensively presented in the literature (Pierce et al. 1995, 1996; Unger et al. 1997; Jackson 1998). Adolescents are susceptible to smoking if they have made no determined decision not to smoke in the next year or if offered a cigarette by a friend. The susceptibility measure integrates intentions and expectations of future behavior; therefore, it identifies persons with a cognitive predisposition to smoking. Longitudinal studies have demonstrated that susceptibility is a stronger predictor of smoking experimentation among both females and males than are other well-established predictors, such as exposure to smokers in the immediate social environment (Pierce et al. 1996; Jackson 1998). A recent study reported that the susceptibility construct can predict who among adolescent experimental smokers will become established smokers (Distefan et al. 1998).

Expectations of Personal Effects of Smoking

Beliefs About Effects on Image and Health

In several longitudinal studies of smoking among adolescents, smoking was more common among persons who lacked knowledge of the health consequences of smoking, doubted that nicotine is addictive, and had mostly positive beliefs about smoking (Conrad et al. 1992). Attitudes that put adolescents at risk for smoking included (1) having tolerance for smoking by others, (2) believing that smoking makes people look good and enhances their image, (3) having the opinion that smoking is fun or pleasant, (4) expecting generally positive consequences from smoking, and (5) placing more value on the perceived positive results of smoking than on the negative consequences. The belief that smoking makes people have an unpleasant smell, look silly, or feel sick reduced the risk for smoking.

Evidence suggested that some attitudes about smoking are especially important among girls. In some studies, girls were found to be at higher risk than boys for smoking if they thought the harmful effects of smoking had been exaggerated (Waldron et al. 1991) or if they dismissed the health hazards of smoking (Swan et al. 1990). In a study of persons 18 through 23 years old, thoughts about health were an important deterrent to smoking among women but not among men (Brunswick and Messeri 1983–84). However, another study showed that boys expected more benefits from smoking than did girls and that the relationship between the expected number of benefits and susceptibility to smoking was stronger among boys than among girls (Pierce et al. 1993).

Findings have been inconclusive on gender-specific differences in whether smokers are perceived to be mature, confident, and self-reliant. In one study, this image was positively associated with smoking among both girls and boys (McGee and Stanton 1993), but in two other studies, such an image was more important among girls than among boys (Mittelmark et al. 1987; Waldron et al. 1991), while in another study such an image was more important among boys than among girls (Dinh et al. 1995).

Concerns About Weight Control

Many girls believe that smoking helps to control weight by suppressing appetite (USDHHS 1980; Klesges et al. 1989, 1997). Findings in several cross-sectional studies suggested that concerns about body weight and dieting are related to smoking status among adolescent girls (Charlton 1984; Gritz and Crane 1991; Pirie et al. 1991). Among 1,915 students in grades 10 through 12 in one school district in Mississippi, girls who smoked were more likely than girls who did not smoke to perceive themselves as fat (Page et al. 1993). This association was not found among boys. Both girls and boys who smoked were less satisfied with their weight than were nonsmokers. A study of Catholic high school students in Memphis, Tennessee, found that among white students who smoked more than once a week, girls (39 percent) were significantly more likely than boys (12 percent) to use smoking in an attempt to control weight (Camp et al. 1993). A longitudinal study of 1,705 students in grades 7 through 10 indicated that concerns about weight and dieting behaviors (e.g., constant thoughts about weight and trying to lose weight) were positively related to smoking initiation among girls but not among boys (French et al. 1994). At baseline, fear of gaining weight, the desire to be thin, and trying to lose weight were also positively related to current smoking among girls.

Although most of these studies reported a relationship between smoking status and concerns about weight, investigators in only one study (Camp et al. 1993) controlled for many other known correlates of smoking: age, race and ethnicity, number of smoking models (e.g., peers who smoke), perceived value of

smoking, degree of social support, risk-taking behavior, rebelliousness, and pharmacologic and emotional reactions to early experimentation with smoking. In that study, being female predicted smoking for weight control reasons.

Most of these studies on adolescents' beliefs about smoking and weight control were conducted primarily or exclusively among white study participants. The processes of smoking initiation may be different across racial and ethnic groups (Flay et al. 1994; Klesges and Robinson 1995). For example, according to a school-based survey conducted in the early 1980s, concerns about weight and dieting may have been less important among African American girls than among white girls (Sussman et al. 1987). In a survey of 6,967 seventh-grade adolescents in an urban school system, Robinson and colleagues (1997) found that African American adolescents who knew about the weight-suppressing effect of smoking were less likely to experiment with cigarettes than were those who believed that smoking had no effect on weight. Among white adolescents, weight control beliefs were not associated with cigarette experimentation. No gender differences were reported.

Beliefs About Mood Control and Depression

The belief that smoking can control negative moods and produce positive moods is important among many girls. One study showed that girls were no more likely than boys to smoke for relaxation or relief from problems or anxieties (McGee and Stanton 1993). However, at least two studies showed that females were more likely than males to say that they smoked to control negative emotions (Semmer et al. 1987; Novacek et al. 1991). Pirie and associates (1991) also found that young women who smoked were significantly more likely than young men who smoked to say that they would be tense and irritable if they stopped smoking.

Depression in adolescence predicts depression in young adulthood (Kandel and Davies 1986) and may have an important interrelationship with smoking. Among adults, major depression is strongly related to smoking (Anda et al. 1990; Glassman et al. 1990; Kendler et al. 1993), although neither the directionality of the association nor its gender-specific effect is completely understood. Findings in a large cross-sectional study suggested that depression and anxiety were associated with smoking among teenage girls of all ages but only among younger teenage boys (Patton et al. 1996). A study in Atlanta of 1,731 youths aged 8 through 14 years who were assessed at least twice from 1989 through 1994 found that antecedent tobacco smoking was associated with an increased risk for subsequent depressed mood but that antecedent depressed mood was not associated with risk for subsequently initiating smoking (Wu and Anthony 1999). Findings were not presented separately by gender, but gender was included in multivariate analyses and was not an independent predictor of smoking initiation. (See "Depression and Other Psychiatric Disorders" in Chapter 3.)

Biological Factors

A growing body of research has explored the interaction between genetic and environmental influences on both initiation and maintenance of smoking (reviewed by Heath and Madden 1995); this work has often been based on complex statistical and genetic models. Studies of monozygotic and dizygotic twins (Boomsa et al. 1994; Maes et al. 1999) or of twins reared apart and reared together (Kendler et al. 2000) suggested that heritable factors account for a substantial proportion of the observed variation in tobacco use, although the range of estimates across studies is wide.

Epidemiologic studies among adults provided additional evidence of genetic predisposition to cigarette smoking. For example, Spitz and associates (1998) reported that patients with lung cancer who had genetic polymorphism at the locus for the D_2 dopamine receptor were more likely to have started smoking at an earlier age and to have smoked more heavily than those without the polymorphism. Lerman and colleagues (1999) reported that the dopamine transporter gene, *SLC6A3-9*, may influence smoking initiation before the age of 16 years, but gender-specific results were not reported. Currently this is an active area of investigation, and further exploration of genetic factors, particularly in racially and ethnically diverse populations, is warranted.

Some studies suggested gender differences in nicotine metabolism (Grunberg et al. 1991) or suggested that women trying to quit are more likely to report withdrawal symptoms than are men (Gritz et al. 1996) or are likely to recall their withdrawal symptoms as more severe than do men (Pomerleau et al. 1994). However, it appears that differences in metabolism may not exist once amount of smoking is controlled for (see "Nicotine Pharmacology and Addiction" in Chapter 3), and it is unclear whether differences in withdrawal responses are subjective or physiologic (Niaura et al. 1998; Eissenberg et al. 1999). Sussman and colleagues (1998) reported that adolescent female smokers were more likely than

their male counterparts to report having difficulty going a day without smoking, but it is not known whether any gender differences related to nicotine metabolism or sensitivity exist that affect initiation.

Little is known about whether endogenous hormones affect the likelihood of smoking initiation among females. The findings of Bauman and colleagues (1992) suggested that testosterone levels among girls but not among boys increase receptivity to the influence of maternal smoking—girls with relatively high testosterone levels may be more likely than girls with low testosterone levels to model their mothers' smoking behavior. Using blood samples obtained from a cohort of pregnant women in the 1960s, Kandel and Udry (1999) reported a positive correlation between maternal prenatal testosterone levels and subsequent smoking among female offspring at adolescence. Also, early onset of puberty may prompt girls to smoke (Wilson et al. 1994); this phenomenon may reflect either hormonal levels or social pressures associated with early puberty. Further research is needed to determine whether hormones influence smoking initiation.

Summary

This qualitative assessment revealed a considerable degree of inconsistency in research findings across studies that have examined gender-specific differences in smoking initiation. Some of the inconsistency resulted from differences in the study populations examined and from differences in study design and quality. However, considering the literature as a whole, certain conclusions seem warranted. Most risk factors for smoking initiation appear to be similar among girls and boys. Evidence indicated that strength of attachment to family and friends and smoking by parents and peers have considerable influence on smoking initiation, but study results were inconsistent, which makes it not possible to conclude that girls and boys are differentially affected by such factors. Likewise, perceptions about norms, prevalence of smoking, and attitudes of peers toward smoking, as well as commitment to school, are strong predictors of smoking initiation; whether they affect girls and boys differently is unclear. Some studies suggested that girls are more likely than boys to smoke if they are rebellious, reject conventional values, or lack commitment to religion. Others suggested that poor self-esteem and emotional distress are more strongly associated with smoking initiation among girls than among boys. Among girls, however, those who are more sociable appear to be at higher risk for smoking initiation than are less socially confident girls. Girls also appear to be especially affected by a positive image of smoking, desire for weight control, and the perception that smoking controls negative moods. Both genders appear similarly affected by coping style, poor refusal skills, low self-efficacy, previous use of tobacco, and intention to smoke. Studies of genetic and hormonal factors in relation to smoking initiation have only recently begun, and it is premature to draw conclusions regarding gender-specific differences related to such factors. Advertising and promotion of tobacco products also affect the likelihood of initiation (see "Influence of Tobacco Marketing on Smoking Initiation by Females" later in this chapter).

Factors Influencing Maintenance or Cessation of Smoking

Overview of the Studies Examined

Factors that influence continuation of smoking exert an effect throughout the lives of smokers. The interrelationship of these factors is complex, but the data on maintenance or cessation of smoking have not been as extensive as the data on smoking initiation. Although considerable effort has been invested in studies to assess therapeutic methods of achieving smoking cessation (Fiore et al. 2000), few longitudinal studies have examined predictors of continued smoking, attempts to stop smoking, short- or long-term cessation, or relapse to smoking among women who smoke regularly and are not enrolled in smoking cessation programs.

To assess studies of smoking maintenance and cessation, a general-purpose framework was used in the 1989 Surgeon General's report on the health consequences of smoking (USDHHS 1989, Chapter 5, Part II). The report discussed three general types of predictors of maintenance or cessation of smoking:

(1) pharmacologic processes and conditions, which are basic factors that interact to produce addiction and to support continued smoking (e.g., number of cigarettes smoked, number of previous attempts to stop smoking, and number of years of smoking);

(2) cognition and decision-making ability (e.g., knowledge about the effects of smoking on health, motivation to continue or to stop smoking, and confidence in one's ability to stop smoking); and

(3) personal characteristics and social context (personality, demographic factors, and environmental influences).

The "transtheoretical model" of Prochaska and colleagues (1992) posits a sequence of five stages in the process of smoking cessation: precontemplation, contemplation, preparation, action, and maintenance of cessation. This model, often referred to as the stages of change model, provides a template for evaluating willingness to change. It has been used in many studies of smoking cessation and as an adjunct to clinical and public health smoking cessation programs.

A major conclusion of the 1980 Surgeon General's report on the health consequences of smoking among women was that "Women at higher education and income levels are more likely to succeed in quitting" (USDHHS 1980, p. 347). The report also noted that successful smoking cessation is associated with a strong commitment to change, involvement in programs that use behavioral techniques, and social support for smoking cessation. These conclusions were based on information about persons who sought treatment to stop smoking; the conclusions revealed little about successful efforts by persons who did not seek treatment. Furthermore, the report recommended development of intervention strategies to target social norms and the particular needs and concerns among women, such as social support and weight gain. According to the report, the longitudinal data available were insufficient to address the factors that influence the cessation process among active smokers. Before 1980, only one longitudinal study of the psychosocial and behavioral aspects of smoking among women had been conducted (Cherry and Kiernan 1976).

Because most smokers, both women and men, stop smoking without formal cessation programs (Schwartz and Dubitzky 1967; Fiore et al. 1990; Yankelovich Partners 1998), understanding the factors that contribute to their attempts to stop smoking and their success in doing so would be helpful in the planning of public health efforts and smoking cessation programs. Both cross-sectional and longitudinal designs have been used to investigate factors related to changes in smoking status among adults who smoke regularly. Cross-sectional study designs have well-recognized limitations, most notably that the temporal relationship between smoking outcomes and predictor variables cannot be satisfactorily assessed (Flay et al. 1983; Chassin et al. 1986; Collins et al. 1987; Conrad et al. 1992). In contrast, even though longitudinal studies do not prove causation, they can be used to place potential predictors and outcomes in temporal sequence and, thus, to suggest possible cause-and-effect relationships (Conrad et al. 1992). Thousands of studies of smoking and its determinants have been conducted, but despite the plea of the Surgeon General's report in 1980, very few longitudinal studies have investigated factors related to changes in the smoking behavior among women who have not enrolled in cessation programs or who have not participated in laboratory studies.

This review includes longitudinal observational studies in which female smokers were surveyed and were followed up over time. Studies that provided results for female smokers and male smokers separately also were included in this review to examine differences in predictors of smoking status between females and males. Studies were excluded for one or more of the following reasons: (1) Results were based on data from smokers exposed to an intervention. (2) Results were based on cross-sectional data, even though the data were collected as part of a longitudinal study. (3) Data analyses did not examine factors related to smoking outcome, did not stratify by gender, or did not examine changes in smoking behavior over time. (4) The primary focus of the study was smoking initiation or transition to regular smoking among adolescents or adults who had previously stopped smoking. (5) The research addressed validity and feasibility of study designs, smoking prevalence, or effects on health rather than smoking maintenance and cessation.

With the use of these guidelines, only 13 studies were selected after review of 2,552 abstracts of research published between 1966 and May 1999; they are available in the MEDLINE, PsycINFO, and Psychlit databases. One unpublished study was also identified through consultation with experts in the field of smoking and health.

Of the 13 studies of smoking maintenance or cessation reviewed here (Table 4.2), 6 included women only, and 7 included both women and men. Study populations ranged from children and adolescents who were followed up into young adulthood to persons aged 65 years or older at enrollment in the study. Four studies were part of national surveys, and 1 study focused on data from a registry of twins. Seven studies were conducted in the United States; the remaining 6 were performed in Denmark, England, Finland, Norway, and Sweden. Most of the studies involved urban populations.

Eight studies used self-administered questionnaires to determine smoking status; five used either telephone or household in-person interviews. Although retrospective data on smoking status during pregnancy were included in two studies, they are likely to be accurate. The information for one of these studies was obtained just two weeks after childbirth and information for the other at the time of delivery, with data on smoking during early pregnancy having been obtained by a nurse or physician at the first routine prenatal visit with a standardized form used in Norway. In two studies, biochemical validation of smoking cessation was performed. Several of the studies were not conducted explicitly to study smoking but included smoking in investigations of other health behaviors or outcomes, such as psychosocial factors affecting infant feeding practices. In the study by O'Campo and colleagues (1992), extensive information on smoking patterns was obtained because it was assumed to be relevant to breastfeeding, but attitudinal and cognitive factors related to smoking behavior were not goals of the study and, thus, were not examined.

Most of the 13 studies focused on a narrow group of predictor variables, which limited the conclusions that could be drawn about the interaction of female gender and other variables. Only two studies (Garvey et al. 1992; Rose et al. 1996) included variables from all three of the domains set forth in the 1989 Surgeon General's report (pharmacologic processes and conditions, cognition and decision-making ability, and personal characteristics and social context). The specific variables and populations in these two studies differed. In all 13 studies, logistic regression, discriminate analysis, or proportional hazard models were used to discriminate between regular smokers at baseline assessment who had stopped smoking by the time of follow-up and those who had not stopped smoking.

A range of criteria was used to define smoking status, and several studies did not clearly define or limit those criteria. For example, one study (Cnattingius et al. 1992) compared continuing smokers with those who had stopped smoking during pregnancy. However, the group of continuing smokers included both women who had stopped smoking and subsequently started again and those who had never stopped smoking during pregnancy. As a result, the differences between smokers and those who had stopped smoking may have been diluted. Only one study (Garvey et al. 1992) involved separate consideration of predictors of early relapse and late relapse to smoking. The time between the first and final follow-up visits ranged from approximately nine months to 15 years in the 13 studies, but changes in baseline characteristics were not taken into account in the presentation of follow-up results. Consequently, if a baseline factor such as depression was measured when a woman was 20 years old but changed over time, conclusions about its relationship to smoking status years later may have been incorrect.

The percentage of women who were regular smokers at the beginning of the studies and for whom complete data were available at two or more follow-up periods ranged from 50 to 98 percent. High attrition is particularly problematic because it is likely not to be random (Ockene et al. 1982).

Transitions from Regular Smoking

Attempts to Stop Smoking

In 1987, among those who have ever smoked, only 18.5 percent of men and 19.5 percent of women in the United States reported they had never tried to quit (USDHHS 1990). In 1998, an estimated 39.2 percent of current daily smokers had stopped smoking for at least a day during the preceding 12 months because they were trying to quit (CDC 2000). However, only a small percentage of persons who try to quit in any given year remain abstinent.

Rose and colleagues (1996) examined the natural history of smoking from adolescence to adulthood and evaluated predictors of attempts to stop smoking in the previous five years. The category "quit attempt" included two groups: those who had stopped smoking but started again within six months or fewer, and those who abstained for more than six months. The study participants, females and males in grades 6 through 12 in a midwestern county school

Table 4.2. Characteristics of 13 longitudinal studies of smoking maintenance and cessation among women who smoked regularly

Demographic group/study	Population	End point	Study period	Sample size	Final response rate (%)
Young persons					
Cherry and Kiernan 1976	Female and male respondents to National Survey of Health and Development who completed the Maudsley Personality Inventory at age 16 years and had follow-up at ages 20 and 25 years England	Relationship of personality scores to changes in smoking behavior	9 years (1962–1971)	2,753	73
Rose et al. 1996	Girls and boys in grades 6–12 who were evaluated for psychosocial factors Midwestern United States	Psychosocial measures as predictors of attempts to stop smoking and of smoking cessation in adult regular smokers	Follow-up at 3 and 11 years (1984–1994)	8,556	73
Pregnant women					
Cnattingius et al. 1992	Women registered at prenatal clinic Uppsala, Sweden	Differences in predictors during pregnancy in women who stop smoking and those who continue to smoke	24–26 and 34–36 weeks' gestation	1,104	98
O'Campo et al. 1992	Women recruited in third trimester of pregnancy 48% white, 52% black Maryland	Sociodemographic factors related to continued smoking during pregnancy; to early postpartum relapse to smoking; and to practices in infant feeding	1–3 and 6–12 weeks after childbirth	1,900	90
Dejin-Karlsson et al. 1996	Primigravidas registered at four antenatal clinics over a 1-year period who reported smoking at conception 83% Swedish, 17% non-Swedish Malmö, Sweden	Psychosocial factors related to continued smoking during pregnancy	12 weeks' gestation	404	88
Nafstad et al. 1996	Mothers of children participating in the Oslo Birth Cohort who had completed information on smoking habits at all three assessments (early pregnancy, delivery, 1 year after childbirth) Norway	Determinants for changes in maternal smoking behavior during and after pregnancy†	Early pregnancy, delivery, and 1 year after childbirth	3,207*	75

*Multivariate analysis conducted on subgroup of 3,039 cohabitating women only.
†Cessation attempt: smokers who reported cessation at delivery. Cessation: smokers who reported stopping smoking during 1st year after delivery.

Table 4.2. Continued

Demographic group/study	Population	End point	Study period	Sample size	Final response rate (%)
Young and middle-aged adults					
Colditz et al., unpublished data	National sample of female nurses in Nurses' Health Study United States	Factors affecting smoking and smoking cessation, as determined in a long-term longitudinal study	Follow-up every 2 years for 10 years (1976–1986)	121,700	85
Kaprio and Koskenvuo 1988	Women and men with a twin ~40% smokers Finland	Psychological, socioeconomic, and medical preditors of smoking cessation, continuation of smoking, or never smoking	Follow-up at 6 years	2,620	89
Williamson et al. 1991	Noninstitutionalized civilian population of women and men from First National Health and Nutrition Examination Study Women: 81% white, 18% black, 0.4% other Men: 85% white, 15% black, 0.4% other United States	Accurate estimates of weight gain related to cessation of smoking in general population	6.7–12.5 years for women 6.7–12.6 years for men	2,653	93
Garvey et al. 1992	Female and male volunteers who had recently stopped smoking Boston, Massachusetts	Predictors of early and late relapse to smoking in those who tried to stop smoking	Bimonthly follow-up for 1 year	235	90
Hibbard 1993	Female members of health maintenance organization who smoked and had long-term follow-up United States	Societal factors predicting smoking cessation	≤ 15 years of follow-up	168	50
Osler 1993	Random sample of women and men in National Central Person Registry Denmark	Social and individual factors associated with differences in smoking, physical activity, and consumption of fruits and vegetables, as determined in a longitudinal study	Follow-up at 5 years (1982–1987)	1,675	83
Older adults					
Salive and Blazer 1993	Older adult women and men in a large population in Established Populations for the Epidemiologic Studies of the Elderly Trial 46% white, 54% black North Carolina	Relationship of smoking cessation and depression in a sample of older adults	3 years	677	80

system, were first surveyed during a three-year period (1980–1983) and again for follow-up periods in 1987 and 1994. The study assessed changes in smoking status as of 1994 among participants who were smokers in 1987. The primary focus was on cognitive factors (e.g., confidence, health beliefs and values, and motivations for smoking) and personal characteristics (e.g., demographics, parental smoking status and education, employment status, social role, and negative affect).

In analyses based on the combined data for females and males, Rose and colleagues (1996) determined that smokers who reported an attempt to stop smoking were more likely to be women, to be married, to have more social roles, and to use smoking to control negative affect. Smokers who reported an attempt to stop smoking also gave higher ratings to the value of health and the perceived likelihood of not smoking in one year than did those who had made no attempt to stop smoking. Female smokers with lower sensory motivation (e.g., less enjoyment in handling a cigarette) were more likely to have attempted to stop smoking, whereas the opposite was true among male smokers. The view that smoking has a negative effect on personal health was related to attempts to stop smoking among heavy smokers but not among light smokers.

Although females were more likely than males to attempt to stop smoking, no gender-specific differences were observed in the success of these attempts (Rose et al. 1996). Because study participants were of childbearing age, pregnancy may have increased the number of attempts among women to stop smoking. The number of cigarettes smoked daily did not affect attempts to stop smoking when other factors were controlled for, but it did affect the success of these attempts. In general, both females and males who attempt to stop smoking may be cognitively more ready to stop (i.e., have higher perceived likelihood of not smoking and higher perceived value of health) than do smokers who do not attempt to stop (Rose et al. 1996). These findings are difficult to generalize, however, because the study population was relatively well educated, white, young, and from the Midwest. In addition, some potentially relevant predictors among women (e.g., motives to control weight and spousal support) were not assessed.

Smoking Cessation

Because all 13 studies in this overview (Table 4.2) investigated predictors of smoking cessation, considering smoking cessation among young persons, pregnant women, young and middle-aged adults, and older adults separately is possible.

Young Persons

Two studies focused on smoking cessation among young persons (Cherry and Kiernan 1976; Rose et al. 1996). Cherry and Kiernan examined the relationship between personality scores and smoking behavior in a cohort of respondents to the National Survey of Health and Development, which was conducted in England. A geographically diverse sample of young persons was surveyed at age 16 years in 1962, age 20 years in 1966, and age 25 years in 1971. At baseline, participants completed the Maudsley Personality Inventory (Eysenck 1958), and information about smoking behavior was obtained at the follow-up intervals. By age 25 years, complete information on both cigarette smoking and personality was available for 2,753 of the 5,362 persons included in the baseline survey, excluding cigar and pipe smokers. The definition of smoking cessation did not specify a period of abstinence, but smokers who had "given up smoking" by age 25 years were considered "quitters" (Cherry and Kiernan 1976).

Variables studied by Cherry and Kiernan (1976) included some measures of pharmacologic and conditioning processes (e.g., age at smoking initiation, smoking rate, and degree of inhalation) as well as personal characteristics (e.g., personality traits of neuroticism or extroversion). Basic differences in personality traits were found among current smokers, former smokers, and nonsmokers. Separate assessments were made for females and males. Among both genders, smokers had higher scores for extroversion than did nonsmokers and former smokers had the highest mean score, but this score was not significantly higher than that among current smokers. Scores on the extroversion scale predicted smoking cessation by age 25 years, and extroverts were more likely than introverts to stop smoking. The number of cigarettes smoked also predicted smoking cessation by age 25 years; smokers who consumed fewer than 10 cigarettes per day were more likely to stop smoking. Higher scores for neuroticism predicted smoking cessation among males but not among females.

The study by Rose and colleagues (1996), described earlier, examined psychosocial predictors of attempts to stop smoking and of successful attempts. More females than males attempted to stop smoking, but gender was not related to successful smoking cessation. These findings differed from results of the cross-sectional component of the Community

Intervention Trial for Smoking Cessation. In that trial, investigators studied 3,553 adults (51 percent women) in 20 U.S. communities. They found that women were as likely as men to attempt to stop smoking but were less likely to remain abstinent (Royce et al. 1997).

Rose and associates (1996) found that the following factors were predictors of success in attempts to stop smoking: achieving higher educational level, consuming fewer cigarettes, having greater expectation of not smoking in one year, valuing health, reporting less social pressure to stop smoking, and not living with children. Gender was included as a covariate, but none of these variables interacted significantly with gender. Except for not living with children, these factors also were related to smoking cessation in a prospective intervention study of men only (e.g., Ockene et al. 1982). Prospective studies of women and men that did not stratify results by gender found that factors related to smoking cessation were lower level of depression (Anda et al. 1990; Breslau et al. 1993), incompatibility of social role with smoking (Hellman et al. 1991), and higher level of social support for not smoking (Sorensen and Pechacek 1987; Ockene 1993; Royce et al. 1997).

Both studies reviewed here (Cherry and Kiernan 1976; Rose et al. 1996) suggested that low cigarette consumption at baseline predicted smoking cessation; findings were similar by gender. Other variables in the pharmacologic and conditioning domain were not predictive. (Rose and colleagues [1996] defined early initiation as the start of smoking in grades 6 through 12 and late initiation as the start of smoking after high school. Cherry and Kiernan [1976], on the other hand, used smoking by age 16 years as the cutoff for early initiation.) Rose and colleagues (1996) found that participants' self-ratings of their likelihood of not smoking in one year predicted smoking cessation in the total sample but not among females or males separately. Longitudinal studies that did not report results specifically for women showed that positive self-efficacy and confidence in one's ability to stop smoking predicted abstinence (Ockene et al. 1981; Yates and Thain 1985; Gritz et al. 1988; Wojcik 1988; Haaga 1990; Ockene et al. 1992; Schmitz et al. 1993; de Vries and Backbier 1994; Gulliver et al. 1995). In one study (Wojcik 1988), self-efficacy was a strong predictor of abstinence among smokers who tried to stop smoking on their own but not among those who attended a smoking cessation program.

The relationship between negative affect and smoking outcomes varied. Young persons in the study by Rose and coworkers (1996) who reported that they smoked to control negative affect, and who thus may have had relatively poor coping skills, were more likely to attempt cessation but less likely to succeed than were those who did not use cigarettes to control affect. This finding was consistent with results in other studies linking ability to cope with negative situations to successful smoking cessation and prolonged abstinence (Shiffman 1982; Abrams et al. 1987; Breslau et al. 1993). The only difference in the results for females and males in the study by Rose and associates (1996) was the relationship between having motives to smoke for stimulation (e.g., smoking "to perk self up") and making a successful effort to stop smoking. Lower levels of motives for stimulation were related to successful smoking cessation among females, whereas higher levels were related to cessation among males.

Pregnant Women

Four studies investigated the predictors of smoking cessation among pregnant women. In a study of 1,104 smokers registered at prenatal clinics in Uppsala, Sweden, Cnattingius and colleagues (1992) investigated the predictors of continued smoking and the predictors of cessation through 36 weeks' gestation. Smoking cessation was defined as having stopped smoking sometime before each assessment. Of the smokers, 29 percent reported having stopped smoking at some time during pregnancy; most of them had stopped smoking before registering for prenatal care. Women who had stopped smoking were compared with those who continued to smoke and with those who relapsed to smoking. Predictors of smoking cessation included having fewer children, living with the baby's father, not being a heavy smoker, and not having other smokers in the home. High level of education and older age at smoking initiation increased the likelihood of smoking cessation. Somatic symptoms (e.g., chest pain, back pain, insomnia, and anxiety) early in pregnancy were not related to changes in smoking status. The investigators did not evaluate the effect of symptoms specific to pregnancy, such as morning sickness and fatigue, on smoking cessation.

In the second study of pregnant women, O'Campo and coworkers (1992) examined the predictors of smoking cessation during pregnancy among urban women in the United States; about equal numbers of white and African American women were studied. The women were interviewed once during weeks 1 through 3 after childbirth and once during weeks 6 through 12 after childbirth.

Disproportionate sampling was used to include a large number of women who were breastfeeding their infants. Prenatal smoking status was determined retrospectively, at the first postpartum interview, and smoking cessation was defined as cessation of smoking before pregnancy or when pregnancy was confirmed during the first trimester. Smoking prevalence before pregnancy was 32 percent, which was consistent with the prevalence reported in two other studies (Kleinman et al. 1988; Fingerhut et al. 1990). Of the women who smoked before pregnancy, 41 percent had stopped smoking during the prenatal period (O'Campo et al. 1992). Among white women, personal characteristics, including younger age, higher education, and whether the birth was the woman's first, were predictors of smoking cessation, whereas among African American women, intention to breastfeed was the only predictor of cessation. These results were consistent with findings in other studies of former smokers (Kleinman and Madans 1985; Fingerhut et al. 1990; Milham and Davis 1991; Ockene 1993; Wakefield et al. 1993).

A third study of pregnant women conducted in Malmö, Sweden, by Dejin-Karlsson and colleagues (1996) examined psychosocial factors related to continued smoking during early pregnancy. Four hundred and four women who were pregnant for the first time and who smoked at the time of conception completed a self-administered questionnaire at the first prenatal visit and on the postnatal ward after delivery. The study focused on demographic factors; psychosocial factors such as social network, social support, and control in daily life; psychosocial characteristics in the workplace; and lifestyle factors such as smoking and alcohol habits. Smoking categories were loosely defined. Prepregnancy smokers were pregnant women who reported at the time of their first prenatal visit that they had smoked around the time of conception. Prenatal smokers were women who at the first prenatal visit reported they were currently smoking regularly or irregularly. Prenatal "quitters" were women who at their first prenatal visit reported that they had stopped smoking because of pregnancy. Information in the medical records was used to validate smoking data collected in the study, and a high degree of agreement was found (kappa = 0.091). Factors related to persistent smoking in early pregnancy were reported, but persistent smoking was not clearly defined. Moreover, the report focuses only on factors related to change in smoking behavior during the brief period from conception (retrospective report) to 8 through 12 weeks' gestation.

After adjustment for age, educational level, nationality, cohabiting status, passive smoking, and years of smoking, findings in this study showed that unmarried women, women whose pregnancies were unplanned, and women with higher job strain (i.e., high job demands and low control) and low psychosocial resources (e.g., low social participation, low instrumental support, and low support from the child's father) were most likely to continue smoking after learning of their pregnancy. Women with lower education and younger women also were more likely to continue smoking. Women who were exposed to passive smoking were more likely to continue to smoke, a finding consistent with other studies that showed that support from one's partner (Nafstad et al. 1996) and smoking status of the partner (Coppotelli and Orleans 1985; McBride et al. 1992) can influence a woman's ability to stop smoking. Lower physical activity was related to continued smoking, but alcohol consumption was not.

Another study of pregnant women examined predictors of attempts to stop smoking and of renewed smoking among cohabiting women in Oslo, Norway (Nafstad et al. 1996). This study was intended to estimate whether changes in women's smoking behavior during and after pregnancy were related to the smoking habits of their cohabitants. Data from early pregnancy were gathered from a standardized registration form filled out by a nurse or midwife at the prenatal visit of 8 through 12 weeks' gestation. A self-administered questionnaire was filled in by the mother (if possible, together with the father) at the maternity ward. The women were categorized as nonsmokers or smokers (occasional smokers and daily smokers). Mothers with complete information on smoking habits at all three data points (early pregnancy, delivery, and 1 year after delivery) were included in the study.

Among 940 cohabiting smokers, having a higher educational level, being primiparous, and having a nonsmoking cohabitant were positively related to smoking cessation during pregnancy (Nafstad et al. 1996). Although cessation during the first year after delivery among women who smoked in late pregnancy was low (13 percent), breastfeeding longer than six months, being primiparous, and not having smoked in early pregnancy were related to cessation. All of the women selected for this study were simultaneously participating in a project on risk factors for obstructive lung disease in early childhood, which may have contributed to an unusually high cessation rate during pregnancy in this study compared with

other studies. In addition, the use of self-reports at follow-up visits and medical records (information obtained from health care providers) at baseline may have created a misclassification of women who had stopped smoking and new smokers. Women may have been less likely to reveal their smoking status to a health care provider during pregnancy but more willing to reveal their smoking status at delivery when they were asked to fill out a questionnaire. Despite these measurement issues, this study supports the growing literature suggesting that partners' smoking status can influence women's ability to stop smoking and not to start again.

All of these studies of pregnant women used different definitions of cessation and were conducted in different countries (Norway, Sweden, and the United States), which makes comparisons difficult. In addition, no study evaluated variables related to cognition and decision making. Nevertheless, findings suggested that lower level of education, higher parity, a less supportive environment or social network, a higher number of cigarettes smoked per day, and longer duration of previous smoking are important determinants of continued smoking among pregnant women. Similarly, attempts to stop smoking are increased by living with a nonsmoker, having low parity, having a higher education, and breastfeeding for at least six months.

Studies of women in smoking cessation programs (Coppotelli and Orleans 1985), women who had already stopped smoking (McBride et al. 1992), and women invited to participate in focus groups on smoking cessation (Lacey et al. 1993) have demonstrated that support from a partner predicts smoking cessation and maintenance of cessation among women. Having partners who were former smokers or who successfully stopped smoking at the same time increased maintenance of cessation in a population of employed women (Coppotelli and Orleans 1985). In a longitudinal study of women who had stopped smoking during pregnancy, those who were married to or lived with a smoker were more likely to relapse by week 6 after childbirth than were those who lived with a nonsmoker (McBride et al. 1992).

Young and Middle-Aged Adults

Six studies reviewed here (Kaprio and Koskenvuo 1988; Williamson et al. 1991; Garvey et al. 1992; Hibbard 1993; Osler 1993; Graham A. Colditz et al., unpublished data) addressed smoking cessation among young and middle-aged adults, but study populations and definitions of smoking cessation varied considerably. The U.S. Nurses' Health Study examined trends in smoking and predictors of cessation among 121,700 female nurses; more than 80 percent of the study population were followed up (Graham A. Colditz et al., unpublished data). Over a 10-year period (1976–1986), the prevalence of smoking decreased by approximately 10 percent. Smoking cessation was defined as having been a smoker at one follow-up time and not smoking at the subsequent assessment; the length of the cessation period was not specified. Pharmacologic variables and personal characteristics were examined as predictors of smoking status. Predictors of smoking cessation included older age at smoking initiation, fewer cigarettes smoked per day, younger age at smoking cessation, and past attempts to stop smoking. The techniques that participants used to stop smoking were not evaluated. Some nurses who had stopped smoking may have enrolled in smoking cessation programs, but because relatively few people in the United States use these programs (Fiore et al. 1990; Yankelovich Partners 1998), their influence on the study results is likely to be small.

Because of their occupational and educational status, participants in the U.S. Nurses' Health Study may not be representative of women in the general population. During the study period, social norms changed in regard to smoking by health care professionals and in health care settings. For example, by 1986, an increasing number of hospitals and physicians' offices had adopted smoking restrictions (Pappenhagen and Weil 1988). Thus, working in a health care setting may have affected smoking cessation among the study participants.

Garvey and colleagues (1992) studied predictors of early relapse to smoking (within 7 days of smoking cessation) and late relapse (31 through 364 days after cessation) among 235 community volunteers. Although the focus of this study was on relapse, the results indicated that longer abstinence during a previous attempt to stop smoking, higher motivation to stop, higher confidence in the ability to abstain for three months, and lower alcohol consumption were related to sustained abstinence from smoking. These results were consistent with research findings on the relationship of self-efficacy and confidence to successful smoking cessation (Yates and Thain 1985). In the study of Garvey and associates (1992), none of the smokers who were successful in attempts to stop smoking had both a spouse who smoked and more than 50 percent of friends who smoked.

Hibbard (1993) examined the predictors of smoking cessation in a cohort of women enrolled in a 15-year follow-up study of members of a U.S. health maintenance organization. Of 168 women identified as smokers at baseline, 33 percent had stopped smoking before the follow-up visit. Assessment of smoking cessation was based on self-report, and no period for abstinence was specified. Pharmacologic, personal, and social variables were included in the study. After adjustment for age, education, and lower number of cigarettes smoked, the only variables that predicted smoking status were occupation and control over one's job. Women with higher occupational status, regardless of level of education, were more likely to stop smoking, as were women who reported having more control over their work. These results were consistent with research findings that suggested that greater control over work leads to less stress for workers (Karasek 1998) and that women with high job-related stress are more likely to smoke than are those with low job-related stress (Ikard and Tomkins 1973; Abrams et al. 1987; Sorensen and Pechacek 1987; Livson and Leino 1988; USDHHS 1989). Hibbard's study (1993) has limitations that raise concerns about the generalizability of the results. The small proportion of women who were married (13 percent) hampered assessment of the effect of marital variables, and the study did not examine psychological variables such as depression and anxiety. Moreover, 50 percent of the original cohort was lost to follow-up.

A study of twins in Finland examined the psychological, socioeconomic, and medical predictors of smoking cessation (Kaprio and Koskenvuo 1988). To prevent correlations between twins from affecting the analysis, only one twin from each pair was included in this study. Smoking cessation was defined as having been a current smoker at baseline and a former smoker at the six-year follow-up; the period of abstinence was not defined. Because the age ranges for women and men differed (20 through 39 years for women; 20 through 54 years for men), the men were divided into two groups for the analyses (20 through 34 years and 35 through 54 years). Only the younger male cohort is discussed here. Pharmacologic, personal, and social variables were examined in relation to smoking cessation. Predictors of cessation among women were higher level of education, lower number of cigarettes smoked daily, and fewer years of smoking. Predictors of smoking cessation among men were higher level of education, lower number of cigarettes smoked daily, frequent alcohol use, and greater number of periods of unemployment. Although several of the personal and social variables (e.g., duration of sleep, daily coffee consumption, and symptoms of breathlessness) were univariate predictors of smoking cessation, they were not significant in a comprehensive multivariate model. Furthermore, the amount of variance accounted for by the predictors was quite small (6 to 11 percent).

Osler (1993) studied the interrelationships of smoking, physical activity during leisure time, fruit and vegetable consumption, and social class over a five-year period among adults in Denmark. Smoking cessation was defined as having stopped smoking during the previous five years, but duration of cessation was not specified. At baseline in 1982, 52 percent of the women and 60 percent of the men were current smokers; at follow-up in 1987, the prevalence of smoking had dropped to 45 percent among women and 51 percent among men. Among both genders, predictors of smoking cessation included being in the highest social strata, being older, and having higher intake of vegetables. Increased physical activity was associated with smoking cessation among men but not among women.

The effect of smoking cessation on weight gain was examined in a national cohort of women and men aged 25 through 74 years from the Epidemiologic Followup Study of the First National Health and Nutrition Examination Survey (Williamson et al. 1991). The cohort included 1,885 continuing smokers and 768 former smokers who continued to abstain from smoking; the follow-up period was 6 through 13 years. Only personal characteristics (demographics, medical condition, reproductive history, and physical activity) were investigated as predictors of smoking cessation. Smoking cessation was defined as success in efforts to stop smoking, within one year of follow-up, after reported smoking at baseline. Compared with continuing smokers, persons who continued to abstain from smoking were older, better educated, more likely to be white, and more likely to have been light smokers.

Older Adults

Only one study (Salive and Blazer 1993) investigated predictors of smoking cessation among older adults. As part of the Established Populations for Epidemiologic Studies of the Elderly, 287 women and 390 men aged 65 years or older were followed up for three years. The researchers examined the relationship between smoking cessation and depression (as measured by the Center for Epidemiological Studies Depression Scale), pharmacologic processes (number

of cigarettes per day and number of years of smoking), and personal characteristics (demographic variables, medical history, and disease during study interval). Smoking cessation was defined as reported success in efforts to stop smoking before follow-up, after reported smoking at baseline. The smoking prevalence was 15.4 percent at baseline and 13.0 percent at the third annual follow-up. Women smokers who were depressed were more likely than those who were not depressed to stop smoking; smoking fewer cigarettes at baseline also predicted smoking cessation among women. Among men, neither depression nor amount smoked was related to change in smoking status. Older age, the only predictor of smoking cessation among men, was not a predictor among women.

Some studies found that depression reduced the likelihood of smoking cessation (Glassman et al. 1990; Hall et al. 1993), and in some studies this effect was more pronounced among women than among men (Anda et al. 1990; Glassman et al. 1990). The latter studies included primarily middle-aged smokers, however, and the relationship between smoking and depression may be different among older adults. Longitudinal studies are needed to examine this relationship across the life span.

Relapse to Smoking

Variables related to relapse to smoking were investigated in studies of pregnant women (O'Campo et al. 1992), female nurses (Williamson et al. 1989; Graham A. Colditz et al., unpublished data), and women and men who attempted to stop smoking (Garvey et al. 1992). In a fourth study, relapse was identified as an outcome variable, but only a few participants relapsed, which precluded multivariate analysis of predictors of relapse (Salive and Blazer 1993).

O'Campo and colleagues (1992) examined the relationship between early relapse and personal characteristics (race, education, age, martial status, and method of infant feeding) during and after pregnancy. Relapse was defined as having stopped smoking just before pregnancy or during the first trimester, remaining abstinent throughout pregnancy, and resuming smoking by the second interview at weeks 6 through 12 after childbirth. Overall, 46 percent of pregnant African American women and 28 percent of pregnant white women relapsed; 70 percent of those who relapsed resumed smoking by week 3 after childbirth. It is highly likely that even more women relapsed after the second interview. Other studies suggested that relapse continues past the initial postpartum period but at a lower rate (National Center for Health Statistics 1988a,b; Fingerhut et al. 1990; Mullen et al. 1990; Windsor et al. 1993). The high incidence of relapse during the postpartum period in the general population suggested that concern for health of the fetus is a strong deterrent to smoking during pregnancy but that women may be less aware of, or less concerned about, the risks from environmental tobacco smoke on the health of infants and children (USDHHS 1986; Fingerhut et al. 1990). Women may find little personal benefit and may lack support for continued abstinence from smoking after delivery as they face the demands of a new infant, return to work, and other postpartum changes.

O'Campo and associates (1992) found that, although the proportion of women who relapsed differed among African Americans and whites, when all factors were examined together, race was not a predictor of relapse, nor was age, marital status, or parity. The only predictor of relapse was the use of formula instead of breast milk for infant feeding, a finding consistent with results of a longitudinal study of women after childbirth (McBride et al. 1992). The finding that other personal characteristics were not independent predictors of relapse was consistent with survey data based on recall (Fingerhut et al. 1990). Even though studies of smokers enrolled in cessation programs (Coppotelli and Orleans 1985) have shown that spousal support influences a woman's ability to remain abstinent, no measures of spousal smoking habits or spousal support for smoking cessation were examined in the study by O'Campo and associates (1992).

In the U.S. Nurses' Health Study, women were considered to have relapsed if they were former smokers at one assessment period but reported current smoking at a later 2-year follow-up (Graham A. Colditz et al., unpublished data). This definition classified women who relapsed in a group with widely varying durations of abstinence. The likelihood of relapse was strongly inversely related to duration of abstinence from smoking. On average, 20.4 percent of women who had abstained for less than 2 years but only 1.4 percent of women who had abstained for 10 years or more were current smokers 2 years later.

Garvey and colleagues (1992) examined predictors of early relapse (within 7 days of smoking cessation) and late relapse (31 through 364 days after cessation) among 235 adults who were followed up after a self-initiated attempt to stop smoking. The investigators found that 62 percent of women and men

combined had relapsed within two weeks of smoking cessation, 76 percent had relapsed by one month, and 87 percent had relapsed within one year. Shorter periods of abstinence from smoking during previous attempts to stop smoking, lower motivation to stop smoking, lower confidence in the ability to abstain from smoking for three months, and higher alcohol consumption were all associated with relapse by one year, but demographic variables, including gender as well as age and education level, did not predict relapse. When the relationship of predictor variables to smoking cessation was analyzed separately for women and for men, the only variable with a significant influence was weight control. Women who were more likely to smoke to control weight were less likely to relapse early than were women with lower ratings on this motive. The opposite was true among men. In a comparison of women who relapsed within seven days with those who abstained from smoking for one year, two significant predictor variables were found: confidence in abstaining for three months and duration of the longest previous abstinence.

The finding that women who smoked to control weight were less likely to relapse early (Garvey et al. 1992) was unexpected, because evidence from other studies suggested that concern about weight gain deters more women than men from smoking cessation (Hall et al. 1986; Sorensen and Pechacek 1987; Klesges et al. 1989; Pirie et al. 1991, 1992; French et al. 1995). Furthermore, many people, particularly women, report that they are concerned about weight gain after they stop smoking (Sorensen and Pechacek 1987; USDHHS 1988; Klesges et al. 1989; Gomberg and Nirenberg 1991; Pirie et al. 1991). Longitudinal studies are needed to investigate the temporal relationship between smoking to control weight and changes in smoking behavior.

Other studies also have demonstrated that short duration of a previous attempt to stop smoking is related to relapse (Ockene et al. 1981; Curry and McBride 1994). Many studies showed that a low degree of commitment, motivation, and confidence in the ability to stop smoking was associated with relapse (e.g., Ockene et al. 1981; Baer et al. 1986; Hall et al. 1990; Ockene et al. 1992; de Vries and Backbier 1994; Gulliver et al. 1995). These findings may reflect the role of self-efficacy in preventing relapse. In one study, former smokers who abstained for three months were more likely than those who relapsed to attribute success in smoking cessation to internal factors under their control and to their own actions (Schmitz et al. 1993). Former smokers who remained abstinent also reported greater self-efficacy in relation to smoking. High self-efficacy has been consistently associated with abstinence from smoking (Yates and Thain 1985).

The findings that lack of confidence and shorter duration of previous abstinence from smoking are related to relapse are particularly relevant among women. Some evidence from laboratory studies (Abrams et al. 1987) and cross-sectional survey data (Waldron 1991) suggested that women may be less confident of their ability to control negative moods without smoking cigarettes, which puts them at higher risk for relapse. One study showed that women were more likely to relapse because of internal pressures during negative emotional situations, whereas men were more likely to relapse because of external pressures (e.g., work-related stress) (Borland 1990). The investigator suggested that men may be more likely to blame others for relapse and, thus, to sustain the feeling of self-efficacy, which facilitates sustained resumption of abstinence. However, women may be more likely to blame themselves, which can lead to lack of confidence, low self-efficacy, and continued smoking.

Summary

The longitudinal studies presented here, even when supplemented by other types of studies that explore the predictors of smoking maintenance or cessation among women, did not provide as rich a view of factors as did the research on smoking initiation. Nonetheless, factors identified in the 13 studies reviewed (Table 4.3) supported several conclusions that inform our understanding of the behavior of women who smoke. One predictor of attempts to stop smoking appears to be cognitive readiness—the belief that stopping will confer health benefits and the expectation of not smoking in the next year. Good predictors of success in smoking cessation among women are higher education, social support, and fewer cigarettes smoked per day. Women who relapse to smoking are more likely than those who remain abstinent to have shorter previous intervals of smoking cessation and lower self-efficacy with regard to the likelihood of success in smoking cessation. Little is known about the predictors of relapse among women during pregnancy or after childbirth, but it appears that women who stop smoking during pregnancy are less likely to relapse if they breastfeed their babies.

Table 4.3. Factors found to predict attempts to stop smoking, smoking cessation, and relapse to smoking among women who were current smokers in the 13 longitudinal studies reviewed

Stage of smoking/ demographic group	Factors	
	Personal	**Social or cultural**
Attempted cessation		
Young persons	High perceived likelihood of not smoking in 1 year High value on health Perception of personally relevant health consequences of smoking cessation Female gender Control of negative affect College education Low-sensory motivation	Married More social roles
Pregnant women	Not having smoked at conception Low parity High level of education Breastfeeding >6 months	Living with nonsmoker
Cessation		
Young persons	Extroversion Low consumption of cigarettes High perceived likelihood of not smoking in 1 year High value on health High-sensory motivation	Low social pressure to stop smoking Employment No children at home More-educated parents Some college education High-sensory motivation and heavy smoking
Pregnant women	Low parity Light smoking High level of education Young age Older age at initiation of smoking Intent to breastfeed Shorter duration of smoking	Living with infant's father No other smokers in home Married Planned pregnancy No exposure to passive smoking High social participation Higher support from child's father Low job strain
Young and middle-aged adults	Previous attempts to stop smoking Confidence in ability to stop smoking in 3 months Number of days abstinent on longest previous attempt to stop smoking Job contentment Level of education Number of cigarettes smoked Highest social group Self-rated good health Increased vegetable intake	
Older adults	Depressive symptoms Fewer cigarettes smoked at baseline	
Relapse		
Pregnant women	Formula feeding of infant Shorter duration of previous abstinence	

Notes: (a) The 13 studies reviewed as described in Table 4.2.
(b) Except where noted, these factors are important for women but apply equally to both sexes.

Marketing Cigarettes to Women

This section presents general data on tobacco marketing and data on the influence of marketing on attitudes and behavior both in the United States and abroad. Modern marketing works best when companies use a coordinated and multifaceted approach that includes advertising, promotion, public relations, and sales strategies (Kotler 1991). Cigarette promotions targeted to women carry through the themes, packaging, and colors used in magazine ads and thus produce a product message that is pervasive and coherent.

Researchers of tobacco marketing to women have adopted an empirical approach that uses the description of actual marketing events to elucidate their impact. They have examined the major forms of marketing and have tried to define the related commitment of resources and specific techniques used. This research has resulted in an accumulated understanding of the marketing process through observation of historical trends and the in-depth analyses of landmark marketing campaigns. In 1993, the tobacco industry spent a record $6.2 billion to advertise and promote cigarettes and smokeless tobacco; 91 percent of this amount was spent on promotions (Federal Trade Commission [FTC] 2000). In 1998, the total expenditure was $6.73 billion, a 19.0-percent increase over the previous year and a 37.6-percent increase from 1995, with a similar proportional distribution of expenditures for advertising and promotion (Table 4.4). Marketing expenditures increased 150 percent from 1986 through 1993, with a 15-percent increase from 1992 through 1993 alone (FTC 2000). As of 1995, expenditures had increased more than 11 times from the $491 million spent in 1975. Marketing expenditures for long cigarettes (94 to 101 mm) and ultralong cigarettes (110 to 121 mm), which are primarily targeted to women, increased from 29 percent of total spending in 1975 to 43 percent in 1994, then declined slightly to 40 percent through 1998. The market share for these long cigarettes increased from 25 percent in 1975 to 40 percent in 1998 (FTC 2000).

Sponsorship of cigarette marketing (e.g., programs such as sports events; entertainment tours and attractions; festivals, fairs, and annual events; and the arts) is used by companies as a central platform for directing other marketing activities (IEG 1995a). Tobacco sponsorships peaked in 1993 at $165 million and declined to $139 million in 1995. Tobacco accounted for 4.0 percent of total expenditures for all consumer product sponsorships in North America in 1995. The top three tobacco sponsors in 1995 were Philip Morris Companies, Inc., RJR Nabisco (parent company of R.J. Reynolds), and the United States Tobacco Company. Of the 3,000 sponsorship opportunities available in 1995, approximately one-fourth had restrictions on tobacco sponsorship, and 93 percent of these excluded tobacco sponsorship (IEG 1995b).

Marketing Techniques

Advertising

The considerable resources devoted to advertising and promotion are placed in the service of techniques with extraordinary power to sell products. Advertising builds a brand's image (Kotler 1991; Mark and Silverman 1992; Bissell 1994), raises the salience of a brand, and conditions consumers to form the attitudes needed to purchase the product (Percy and Rossiter 1992). Attitudes include a cognitive or logical component (e.g., beliefs about benefit) and an affective component (e.g., emotions that energize behavior) (Percy and Rossiter 1992). Consumers often buy products because of the psychological and social meaning the products represent to them (Kindra et al. 1994). Advertising of cigarette brands uses specific themes to suggest distinctive identities (Chapman and Fitzgerald 1982). A classic example is the Marlboro man, who projects a sense of adventure, freedom, and being in charge of his own destiny (Trachtenberg 1987). Smokers and potential smokers may identify with the projected images and purchase the brand as a surrogate for adopting the portrayed behavior (Solomon 1983; Botvin et al. 1993). Brand images may pose solutions to identity problems and appeal to persons who are socially insecure (Chapman and Fitzgerald 1982; Trachtenberg 1987). The theme of a cigarette advertisement (e.g., adventure, glamour, and independence) evokes an enhanced self-image (Solomon 1983), and consumers may feel they are purchasing enhancement along with the product. Typically, the ads use attractive, youthful models and portray smoking in socially pleasing circumstances and surroundings. Repeated exposure to such ads may have a strong influence on the brand

Table 4.4. Expenditures for domestic cigarette advertising and promotion, 1995–1998

	1995		1996		1997		1998	
	Total dollars	% of total	Total dollars	% of total	Total dollars	% of total	Total dollars*	% of total
Advertising								
Newspapers	19,122	0.4	14,067	0.3	16,980	0.3	29,444	0.4
Magazines	248,848	5.1	243,046	4.8	236,950	4.2	281,296	4.2
Outdoor	273,664	5.6	292,261	5.7	295,334	5.2	294,721	4.4
Transit	22,543	0.5	28,865	0.6	26,407	0.5	40,158	0.6
Total	564,177	11	578,239	11	575,671	10	645,619	9.6
Promotion								
Point of sale	259,035	5.3	252,619	4.9	305,360	5.4	290,739	4.3
Promotional allowances	1,865,657	38.1	2,150,838	42.1	2,438,468	43.1	2,878,919	42.8
Sampling distribution	13,836	0.3	15,945	0.3	22,065	0.4	14,436	0.2
Specialty item distribution	665,173	13.6	544,345	10.7	512,602	9.6	355,835	5.3
Public entertainment	110,669	2.3	171,177	3.4	195,203	3.4	248,536	3.7
Direct mail	34,618	0.7	38,703	0.8	37,310	0.7	57,772	0.9
Endorsements and testimonials	0	0	0	0	0	0	0	0
Coupons and retail value added†	1,348,378	27.5	1,308,708	25.6	1,522,913	26.9	2,179,590	32.4
Internet‡	NA	NA	432	0.0	215	0.0	125	0.0
Other△	33,680	0.7	46,264	0.9	50,207	1.0	61,584	0.9
Total	4,331,046	89	4,529,031	89	5,084,343	90	6,087,536	90.5
Grand total	4,895,223	100¶	5,107,270	100	5,660,014	100	6,733,155**	100

*In thousands of U.S. dollars.
†1997 was the first year the Federal Trade Commission required the cigarette companies to report separately their expenditures for coupons and for retail value added.
‡1996 was the first year the Federal Trade Commission identified the Internet as a separate category of expenditures.
§NA= Not available.
△Expenditures for audiovisual promotion are included in "Other" to avoid disclosure of data for individual companies.
¶Because of rounding, sums of percentages may not equal 100%.
**Total dollar value as published in the printed report.
Source: Federal Trade Commission 2000.

selection of consumers who identify with the lifestyles and images used (Bearden and Etzel 1982). For some consumers, cigarette smoking may actually contribute to their structuring of social reality, self-concept, and behavior (Solomon 1983).

Advertising is also used to reduce fear of the health risks from smoking (Botvin et al. 1993) by presenting facts and figures (e.g., information on nicotine and tar content) or by using positive imagery (e.g., clear blue skies and white-capped mountain peaks). For example, many modern ads have shown models engaged in exercise (Pollay and Lavack 1993). In addition, advertising is used to encourage brand loyalty by reinforcing preferences rather than encouraging brand switching (Raj 1985; Tellis 1988). Image reinforcement attracts repeat purchasers. In one market research study, Marlboro customers were offered half-priced Marlboro cigarettes packaged in generic brown boxes; only 21 percent of customers were attracted to the offer (Trachtenberg 1987).

Promotions

An effective marketing strategy uses both advertising and promotions. Promotions are typically used to convince people to try a product, to increase purchase volume, to encourage brand switching, to win

customer loyalty, and to enhance corporate image (Gagnon and Osterhaus 1985; Warner et al. 1986; Levin 1988; Tellis 1988; Kotler 1991; Mark and Silverman 1992; Zinn 1994). Retail value-added promotions stimulate short-term sales (Kotler 1991). Because women and youth are sensitive to low prices, reduced prices may be an especially effective tool for reaching them (Lynch and Bonnie 1994; Townsend et al. 1994; Chaloupka and Warner 1999). Promotional allowances paid to retailers help to ensure prominent placement of a product in high-volume areas or near products such as candy or liquor (Kotler 1991; Lynch and Bonnie 1994).

Point-of-sale promotions influence consumers when they are making purchase decisions and, thus, also build support among retailers (Gagnon and Osterhaus 1985; Lynch and Bonnie 1994). Such promotions allow targeted marketing, are easy to evaluate with sales data, and are relatively inexpensive (Gagnon and Osterhaus 1985). Women are an especially lucrative target for promotions because they make about 80 percent of the purchase decisions in the marketplace (E. Janice Leeming, Executive Director, Marketing to Women, letter to Sharon Dean, Corporate Fact Finders, April 12, 1993).

Specialty items that contain brand names or logos, such as clothing and accessories, often serve as walking ads and enhance the perception that tobacco use is the norm (Lynch and Bonnie 1994). For cigarettes, these items do not carry the health warning required for other forms of advertising and promotion (Slade et al. 1995). Coupon redemption helps to create databases of millions of smokers for further promotions (Lynch and Bonnie 1994; Zinn 1994), and these databases also provide demographic information for marketing and for encouraging smokers to become politically involved in issues related to tobacco policy.

Tobacco companies have also used innovative promotional campaigns by offering discounts on common household items unrelated to tobacco. For example, Philip Morris has offered discounts on turkeys, milk, soft drinks, and washer detergent with the purchase of tobacco products (Slade 1994). If tighter restrictions on tobacco advertising and promotion were implemented, more of this type of marketing may occur. Consumer products that women are more likely than men to purchase will be prime candidates for such an approach to product promotion.

Sponsorship

Brand or corporate sponsorship of public entertainment, sporting events, or organizations that promote specific causes provides multiple benefits to the corporations. Sponsors spend money to achieve commercial objectives; sponsorship is economical because it allows a company to reach a niche market without wasting resources and provides "embedded advertising," which links product attributes or lifestyle images to an active event (IEG 1995a, p. 5). Sponsorship also promotes audience loyalty. For example, for the cost of a 30-second spot during a Super Bowl broadcast, a company can sponsor a team in the NASCAR Winston Cup series and receive more than 30 hours of television coverage. Companies also use sponsorship to drive sales, through discounted tickets and point-of-purchase display ads (IEG 1995a).

Sponsorship associates a brand with prestigious events and may make the brand appear more credible than its competitors (Kotler 1991; IEG 1995a). Tobacco industry sponsorship may also lend an aura of social legitimacy to smoking, create gratitude from the recipient institutions, gain allies, or encourage neutrality toward industry activities and thereby soften public criticism of the industry (Elkind 1985; Ernster 1986; Levin 1988; Williams 1991).

Product Packaging

The packaging of a brand of cigarettes, including name, logo, and colors, presents an image that cues attitudes toward the brand and affects its attractiveness (Britt 1978; Beede and Lawson 1992; Health Canada 1995). When repeated in advertising copy, the attributes of the brand become familiar stimuli that enhance recall and retention (Beede and Lawson 1992). Brand images may be used to attract women and men or to counteract negative stereotypes, such as the idea that smoking is inappropriate for women (Elkind 1985). These images may be particularly important among young female smokers. Brand is an important component of consumer decisions among children (Ward et al. 1977), and minors can successfully recall tobacco brand images and slogans (USDHHS 1994). Cigarette advertising may have predisposing and reinforcing effects among children (Aitken et al. 1991).

Tobacco is the ultimate "badge product" (Bissell 1994, p. 16) for tobacco marketing generally and for product packaging specifically. For product packaging, it is a badge product because it is used frequently, is displayed in social settings, and shows its package design and brand every time it is used (Trachtenberg

1987; Bissell 1994; Pollay 1994). Color, design, and shape symbolically convey the image of the brand. Because visual image alone often stimulates the purchase of a brand (Percy and Rossiter 1992), consumer recall of the brand name at the time of purchase is not necessary.

Packaging influences the attitude of a consumer toward a product and the choice of a brand (Opatow 1984; Gordon et al. 1994). Graphics and color convey nonverbal messages. For example, blue and white signify cleanliness and purity and are frequently used for health products (Opatow 1984). Light blue signifies calm and coolness. Red connotes excitement, passion, strength, wealth, and power (Gordon et al. 1994; Kindra et al. 1994) and is frequently used for male-oriented products. Red is a popular color for tobacco packaging because it demonstrably aids recall of the product (Beede and Lawson 1992; Health Canada 1995). Green suggests coolness, restfulness, nature, cleanliness, and youthfulness. Pastels are associated with femininity: light purple suggests freshness, springtime, and flowers; pink suggests innocence and relaxation; and light yellow suggests freshness and intelligence (Gordon et al. 1994; Kindra et al. 1994).

In recent years, internal tobacco industry documents have become available and are easily retrievable from various Web sites. A good inventory of tobacco industry Web sites is available through the CDC's Office on Smoking and Health Web site at http://www.cdc.gov/tobacco. A few examples from tobacco industry documents are provided below to illustrate how the tobacco companies have viewed women. These excerpts were obtained from the report "Big Tobacco and Women," available at the following Web site: http://www.ash.org.uk.

An RJR document titled "Women's Response to Advertising Imagery" noted: "With the exceptions of career women and single women who work to support themselves, all female segments in the present study reacted positively to advertising imagery associated with the following dimensions: intimacy and closeness, tenderness and gentleness, loving, caring, and sharing."

An RJR document from 1983, summarizing focus groups held with women, noted: "There is greater agreement as to how and why women began smoking in the first place. Beyond the easily recognized pressure of peers, women smoke to indicate passage into adulthood and as part of this transitional period, to exhibit anti-authoritarian behavior."

The internal tobacco industry documents also contain evidence that children were explicitly targeted with promotional campaigns. For example, a handwritten letter from a parent sent to RJR in 1981 noted: "Dear Sirs, You are sending Christmas Cards and Coupons to encourage my 15-year-old daughter to smoke. Please remove my daughter from your mailing list."

In a 1981 report titled "Social Trends Among Female Smokers," British American Tobacco commented on women's attitudes toward smoking: "(1) concern about smoking too much, (2) actively looking for new brands of cigarettes to smoke, (3) believe there should be different cigarettes for men and women, (4) report using, at least occasionally, cigarettes for enjoyment, (5) acceptable if used moderately, cigarettes for enjoyment, (6) low tar and nicotine cigarette represent a major step in the direction of making smoking less harmful to the health" (http://www.ash.org.uk).

Historical Antecedents

Modern concepts of cigarette marketing had their genesis about 80 years ago, as the industry first developed its techniques in national campaign efforts for mass markets. Early in this century, major cigarette brands did not explicitly target women for "fear that they may draw the lightning of the busybody element that brought about prohibition" (Bonner 1926, p. 21). During the 1920s, however, this restraint was cast aside. Marlboro, for example, was positioned in the mid-1920s as a premium-priced brand of cigarettes advertised to women as being "Mild as May" (Bonner 1926, p. 21). A billboard campaign for Chesterfield in 1926 showed a woman seated next to a male companion who was smoking; she asks him to "Blow Some [smoke] My Way" (Bonner 1926, p. 46). This request was described nearly four decades later as one of the great ads of all time (*Printers' Ink* 1963). The scene was originally cast in a moonlit setting, but variations portrayed the couple on or in "couches, porch swings, roadsters, and rumble seats" (Goodrum and Dalrymple 1990, p. 196). This campaign precipitated public expressions of moral outrage, because smoking was considered audacious behavior for a woman, symbolizing a rebellious, libertine lifestyle. Most women who smoked, for example, were free of family restraints—college girls, city sophisticates, and flappers (Schudson 1984; Ernster 1985).

George Washington Hill, of the American Tobacco Company, the manufacturer of Lucky Strike cigarettes, was described as "obsessed" by the yet-to-be-tapped potential of the female market. He was quoted by his own public relations consultant as saying, "It will be like opening a new gold mine right in

our front yard" (Bernays 1965, p. 383). Hill hired advertising agent A.D. Lasker because of his success with the delicate task of using national magazines to sell sanitary napkins to women (Gunther 1960). Lasker and Hill paid European actresses and opera stars to give testimonials for the Lucky Strike brand and, for a while, cited a survey of physicians claiming that "Luckies" were less irritating than other brands.

To combat these promotional efforts, Edward Bernays, a public relations specialist, was hired by Liggett & Myers for its Chesterfield brand of cigarettes. Bernays ridiculed the opera star campaign by creating the Tobacco Society for Voice Culture, an organization with the aim "to establish a home for singers and actors whose voices have cracked under the strain of their cigarette testimonials" (Bernays 1965, p. 374). In response to the survey of physicians, 5,000 copies of an article entitled "Cigarette Copy Bunk, Physicians Declare Blanket Endorsement Used in Ads Unwarranted" were distributed to influential persons (Bernays 1965, p. 375). When the American Tobacco Company lured Bernays away from the makers of Chesterfield, he consulted A.A. Brill, a famous psychoanalyst who interpreted cigarettes as "symbols of freedom" (Bernays 1965, p. 386). Subsequently, Bernays mounted publicity stunts, such as hiring women to smoke in New York City's Easter Parade and to wear placards identifying their cigarettes as "torches of freedom" (Bernays 1965, p. 387).

By the late 1920s, ads for Old Gold, Camel, and other brands were featuring women (Figure 4.1). Cigarette ads began appearing in magazines with large female readerships, including *True Story, Picture-Play, Junior League Magazine, Delineator, Pictorial Review, Modern Priscilla, House & Garden, Vogue, Harper's Bazaar, Vanity Fair,* and fiction magazines (Tilley 1985). By the mid-1930s, cigarette ads targeting women were so commonplace that one ad for the mentholated Spud brand had the caption "To read the ads these days, a fellow'd think the pretty girls do all the smoking" (*The Saturday Evening Post* 1935, p. 42). Another ad appealed to women with "Doesn't irritate my girlish throat either" (*Tide* 1936, p. 11). In 1938, a Camel ad featured a young woman identified as a successful business "girl" who chose Camels because "they never bother my throat" (*Life* 1938) (Figure 4.2). At the same time, an ad for the Tareyton brand of the American Tobacco Company targeted women with the slogan "Moist lips are thrilling lips! Keep them soft, alluring" (*Tide* 1936, p. 12). Marlboro, still positioned as a woman's cigarette in 1943, was advertised in *Mademoiselle, Charm, Glamour, Vogue, House & Garden,* and *Cosmopolitan* and was available with both an ivory tip and a red "beauty tip" to mask lipstick stains (Sobczynski 1983, p. M-14) (Figure 4.3). During World War II, cigarette ads showed women in either uniform or war-industry garb, touting the mildness of the product (Figure 4.2).

Figure 4.1. By the late 1920s, women were appearing in ads for Old Gold and other cigarette brands

Source: Tobacco Industry Promotion Series, History of Advertising Archives, Faculty of Commerce, University of British Columbia, Vancouver, Canada.

Making Cigarettes Glamorous

The best known advertising campaign of the American Tobacco Company urged women to "Reach for a Lucky Instead of a Sweet" (Wagner 1929, p. 344; Wallace 1929; *Journal of the American Medical Association* [*JAMA*] 1930) (Figure 4.4). Once the association of smoking with slimness was well established, the ads counseled women to "avoid that future shadow" and featured silhouettes of women with large double chins or fat ankles behind images of svelte young women (*JAMA* 1930; Tyler 1964, p. 100) (Figure 4.4). This positioning of Lucky Strike as an aid to weight control led to a 312-percent increase in sales for this

Figure 4.2. In 1938, a Camel ad featured a business "girl," and in the World War II era, Chesterfield and Camel ads showed women in war industry garb and military uniform, respectively—all touting the mildness of cigarettes

Sources: Clockwise from top right: *Life* 1938; *Life* 1943a; *Life* 1943b.

brand in the very first year of the advertising campaign, despite the protests of sugar and candy interests (Gunther 1960).

During this time, Bernays (1965) pursued the emphasis on slimness for the American Tobacco Company by "flooding fashion editors with photographs of thin Parisian models in haute couture dresses" (Bernays 1965, p. 383). After research showed the green Lucky Strike package was unpopular with some women because it clashed with clothing, Bernays worked with clothing manufacturers, department stores, magazine fashion editors, and interior decorators and sent out press releases describing the psychological benefits of the color green as "the color of spring, an emblem of hope, victory (over depression) and plenty" (Bernays 1965, p. 390).

In the late 1930s, testimonials claiming benefits of cigarettes to the throat were reinstated. Ads describing Lucky Strike cigarettes as a light, gentle smoke that offered "throat protection" included testimonials from "leading artists of radio, stage, screen and opera,

Figure 4.3. A 1943 Marlboro ad in six women's magazines promoted a red beauty tip to hide lipstick stains

Source: Tobacco Industry Promotion Series, History of Advertising Archives, Faculty of Commerce, University of British Columbia, Vancouver, Canada.

whose voices are their fortune" (Pollay 1993, p. 5), including Miriam Hopkins, Carole Lombard, Joan Crawford, Myrna Loy, Dolores Del Rio, and Claudette Colbert. By 1940 and continuing through the years of World War II, Chesterfield ads regularly featured glamour photographs of a Chesterfield girl of the month, primarily from the world of fashion models and Hollywood starlets. Some endorsers were famous stars, including Rita Hayworth, Rosalind Russell, and Betty Grable (Pollay 1993). From 1943 through 1946, ads for the Regent brand of cigarettes featured drawings of celebrities, including Diana Barrymore, Joan Blondell, Jinx Falkenberg, Merle Oberon, Jane Wyatt, Arlene Francis, Celeste Holm, and June Havoc (Pollay 1993). The trend continued after World War II, with Chesterfield endorsements from women show business celebrities, such as Jo Stafford, Ann Sheridan, Virginia Mayo, Ethel Merman, and Dorothy Lamour (Pollay 1993). In 1946, one of the now famous "More doctors smoke Camels…"

Figure 4.4. The best known advertising campaign of the American Tobacco Company appealed to the desire of women to be slim, as shown by 1920s and 1930s Lucky Strike ads

Source: Tobacco Industry Promotion Series, History of Advertising Archives, Faculty of Commerce, University of British Columbia, Vancouver, Canada.

ads featured a female physician, who is identified as the 1946 version of the "Lady with a Lamp" (Figure 4.5). In the early 1950s, Camel cigarettes, too, were endorsed by celebrities, including opera star Nadine O'Connor and movie star Joan Crawford, in ads claiming "Not one single case of throat irritation due to smoking Camels" (Starch 1951; Starch 1953, p. 73).

Recognition of Power of Advertising

The trade presses of both the advertising and tobacco industries were unequivocal in giving credit to advertising for the growth of cigarette sales, especially among women. "The growth of cigarette consumption has, itself, been due largely to heavy advertising expenditure…. It would be hard to find an industry that better illustrates the economic value of advertising in increasing consumption of a commodity" (Weld 1937, p. 70). Advertising was viewed not only as a vehicle for increased sales, but also "as an educator of public opinion…. The cigarette companies were instrumental in destroying the fetters of an outmoded convention [against women smoking]…. The advertising appropriations of the cigarette companies have been truly large and truly productive…." (*Tobacco Retailers' Almanac* 1938, p. 18).

Fueled by past successes in encouraging ever more women to take up cigarette smoking, industry insiders remained confident that the post-World War II period offered even more untapped potential. "Women can be converted and there are a lot of them—particularly through the Middle and Far Western States—that have not had that comforting experience of smoking a cigarette" (Dunhill 1949, p. 32). Responding to a survey, cigarette industry leaders agreed that "a massive potential market still exists among women and young adults" and acknowledged that recruitment of these millions of prospective smokers was "the major objective for the immediate future and on a long-term basis as well" (*United States Tobacco Journal* 1950, p. 3). Even after the health scare that started in December 1952 with the publication in *Reader's Digest* of a brief article entitled "Cancer by the Carton" (*Reader's Digest* 1952), optimism about recruiting female nonsmokers was publicly expressed. In 1953, an article in the *United States Tobacco Journal* (1953) claimed that "more than three-fifths of the nation's women comprise a potential new market for the cigarette industry" (*United States Tobacco Journal* 1953, p. 3). This estimate was based on a survey of 16 cities where only "40.53 percent of the women in these markets now smoke cigarettes" (*United States Tobacco Journal* 1953, p. 3).

Figure 4.5. A 1946 Camel ad featured a female physician—one of the testimonials claiming benefits of cigarettes and the throat

Source: *Life* 1946.

Links of Fashion to Advertising

Fashion was prominent in cigarette advertising during the 1950s. R.J. Reynolds' "elegant swashbuckling" Cavalier (*Tide* 1950, p. 53), a brand and trade character, was used for many fashion tie-ins in 1950. The Cavalier lapel pin was acquired by thousands of women, and adaptations of his hat and shoes were sold in women's clothing stores. Cavalier was also connected with a new women's raincoat, a housecoat, a fall suit, and a sleeve cuff. A milliner sold a Cavalier hat in 24 colors and gave buyers free packs of Cavalier cigarettes. Sample packs of cigarettes had long been distributed to hotel fashion shows, women's society meetings, bridge clubs, airlines, secretarial schools, and companies with employee lounges (*Tide* 1950).

Ads for the Parliament brand were "drenched in fashion appeal," by using "a haut [sic] monde tone" (*Printers'Ink* 1955, p. 87). Another ad, showing a woman wearing gloves and placing L&M cigarettes in her purse, declared, "Just Where You'd Expect to Find

L&M" (Gerry 1956, p. 23). Lorillard developed nationwide promotional campaigns that linked the company's Kent and Newport brands with such fashion magazines as *Vogue* and *Mademoiselle*, department stores, specialty stores, and several prominent fashion houses. Six dresses were designed exclusively for the Kent brand. Meanwhile, Newport's "Refreshing Change" promotional drive featured chemise dresses, sportswear, and swimsuits created by a range of designers to appeal to young women (*United States Tobacco Journal* 1958, p. 20). In announcing these campaigns, Lorillard's vice president and director of advertising commented, "It will enable us to reach the fashion pace-setters in many important communities, and psychologically, we think our use of this special avenue for women's attention—an indirect sell—will be appreciated by the more fashion-conscious sex" (*United States Tobacco Journal* 1958, p. 20). In addition, 200 of the department stores involved in this promotion used point-of-sale merchandising to promote Kent and Newport cigarettes (*Printers'Ink* 1958). Also targeting fashion-conscious women, Liggett & Myers developed designer packaging for king-sized Lark, L&M, and Chesterfield (*Advertising Age* 1968b). Even some ads having a health protection theme used fashion variants, such as Pall Mall's 1952 "Guard Against Throat-Scratch" ad featuring a fashionable woman (Figure 4.6).

In the early 1950s, the *Chicago Tribune* hired the firm Social Research, Inc. to study the habits and attitudes of cigarette purchasers. The findings indicated that people had brand preferences even though they could not differentiate among cigarettes when they were blindfolded. Participants believed that each brand had certain qualities and that some brands were more or less appropriate for either men or women. In particular, the novel king-sized and cork- and filter-tipped brands were considered feminine at that time. A motivation researcher in the 1950s described smoking as an expression of freedom and worldliness among women, an idea he believed could be exploited and reinforced by advertising (Martineau 1957).

James Bowling of Philip Morris USA (subsidiary of Philip Morris Companies, Inc.) commented, "The ladies have led every major cigarette trend in the past 15 years…. Our studies show that they were the first to embrace king-sized cigarettes, menthol, charcoal, and recessed filters" (Sanchagrin 1968, p. 26). By 1953, the wave of new product introductions for king-sized and filter-tipped versions of both traditional and new brands had begun, and women smokers accepted the "new and improved" products (*Advertising Age* 1953). Sellers of traditional brands also continued to target their advertising to women.

Figure 4.6. In a 1952 ad, Pall Mall used the image of a fashionable woman as part of a health protection theme

Source: *Life* 1952.

Influence of Tobacco Marketing on Smoking Initiation Among Females

This section reviews the evidence linking tobacco marketing to smoking initiation. Because not all studies have focused on females, this topic is reviewed rather broadly here, including tobacco marketing that specifically targeted girls and women and marketing that was not necessarily gender specific. When comparisons between females and males are available, they are reported.

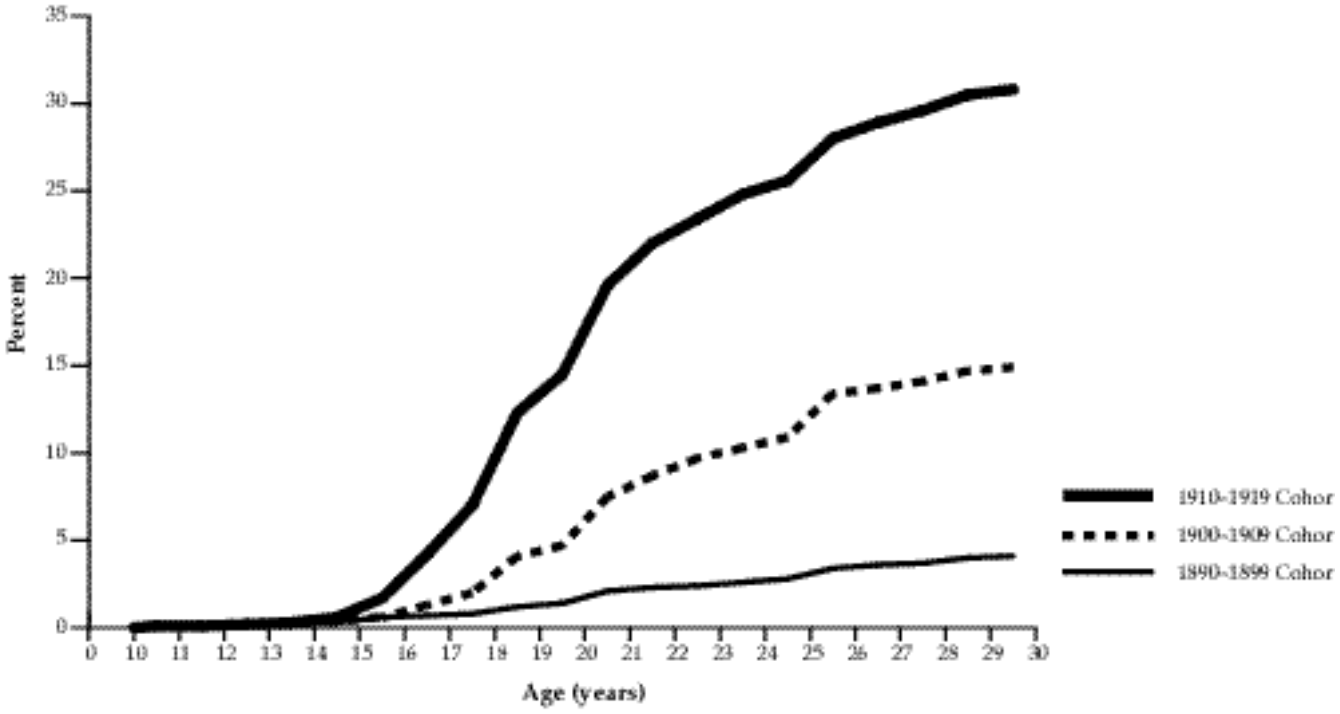
As described earlier in this chapter, the tobacco industry changed its marketing strategy over the years to build and maintain its customer base. Marketing efforts were directed particularly to women in the 1920s and 1930s and again in the late 1960s, when niche brands were introduced. In this section, temporal trends in smoking initiation among females,

compared with trends among males, are examined with respect to marketing campaigns. (For in-depth discussion of trends among females, see "Trends in Current Smoking Among Women" in Chapter 2.) The focus is on adolescents and young adults, because most people begin smoking before they reach mature adulthood (USDHHS 1994).

The earliest nationally representative U.S. data on smoking initiation were from the 1955 Current Population Survey (Haenszel et al. 1956). In this survey, respondents were asked about smoking history, and those who had ever smoked were asked the age at which they started to smoke regularly (Haenszel et al. 1956). Very few females born between 1890 and 1899 had ever smoked (Figure 4.7). Only 7.5 percent of the females in the cohort born in 1900–1909 had started to smoke regularly by age 21 years, and 14.9 percent had by age 30 years—the midpoint age of that cohort when the tobacco industry campaign to recruit female smokers was in full swing. However, 19.6 percent of the females in the cohort born in 1910–1919, who were teenagers during at least the early part of the campaign, began smoking by age 21 years. By comparison, 51.2 percent of males in the cohort born in 1900–1909 started smoking by age 21 years, and 61.3 percent of them had begun by age 30 years. A slight increase was noted in the proportion of males who smoked by age 21 (to 56.9 percent) for the cohort born in 1910–1919.

Data collected as part of the National Health Interview Survey beginning in 1970 presented a similar picture. In each of six surveys (1970, 1978, 1979, 1980, 1987, and 1988), respondents who had ever smoked were asked the age at which they started to smoke regularly. Data for adults aged 20 years or older were combined to analyze smoking initiation patterns over time among females and males at ages 14 through 17, 18 through 21, and 22 through 25 years for the periods 1910–1925 and 1926–1939 (Pierce and Gilpin 1995). Smoking initiation among women aged 18 through 25 years began to increase significantly in the mid-1920s, the same time that the tobacco industry mounted the Chesterfield and Lucky Strike campaigns directed at females. The trend was most striking among women aged 18 through 21 years; smoking initiation increased from 0.5 percent in 1910–1911 to more than 1.5 percent in 1924–1925, and reached nearly 5 percent in 1938–1939. Among women aged 22

Figure 4.7. Cumulative percentage of females who had become regular smokers, by birth cohort



Source: Haenszel et al. 1956.

through 25 years, smoking initiation was near zero in 1910–1911, then increased to about 0.5 percent in 1924–1925 and to 1.8 percent in 1938–1939. Among girls aged 14 through 17 years, smoking initiation was low in 1910–1925 (<1 percent), increased after 1925, and reached about 2.5 percent by 1938–1939. It is unlikely that smoking initiation among females would have increased during that time had the tobacco industry not stimulated the demand. The two brands of cigarettes most heavily pitched to women during the campaign were Lucky Strike and Chesterfield. The Lucky Strike campaign of the mid-1920s that encouraged women to "Reach for a Lucky Instead of a Sweet" resulted in a dramatic increase in sales; Lucky Strike went from being the third-ranked brand in 1925, with sales of 13.7 billion cigarettes, to the first-ranked brand in 1930, with sales of more than 40 billion (Pierce and Gilpin 1995).

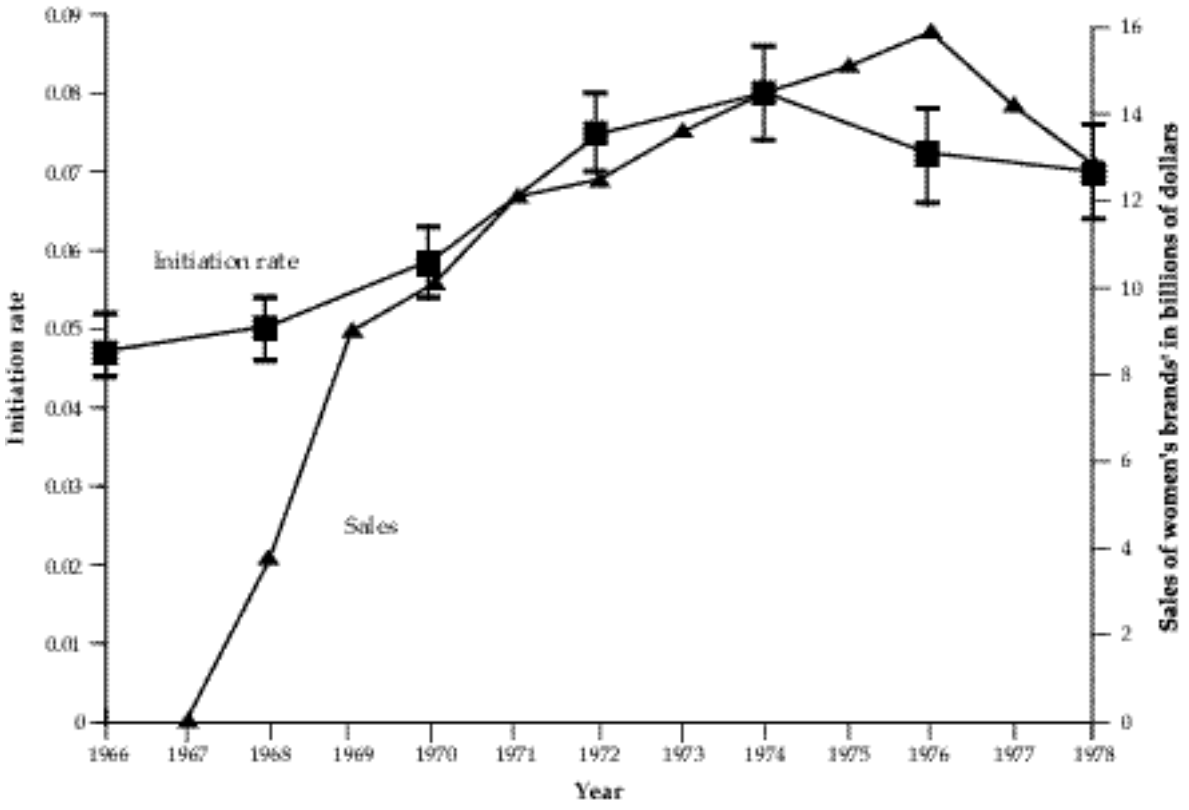
Patterns of smoking initiation from the post-World War II period through the mid-1980s were examined in relation to the introduction of brands targeted primarily to females (Pierce et al. 1994). The results indicated that incidence of smoking initiation among girls aged 17 years or younger was stable or declined slightly from the mid-1950s through the mid-1960s. After 1967, initiation of smoking among girls climbed dramatically, especially for girls aged 14 through 17 years, although increases were apparent even for girls as young as 11 years old. This upward trend in smoking initiation among adolescent girls continued until the mid-1970s. The increases from 1967 to the peak observed in the 1970s were approximately 110 percent for age 12 years, 55 percent for age 13 years, 70 percent for age 14 years, 75 percent for age 15 years, 55 percent for age 16 years, and 35 percent for age 17 years. Initiation rates among girls aged 14 through 17 years rapidly increased in parallel with the combined sales of the leading women's niche brands during this period (Virginia Slims, Silva Thins, and Eve) (Figure 4.8) (see text box "Virginia Slims: A Case Study in Marketing Success"). In contrast, smoking initiation among men aged 18 through 20 years declined abruptly after World War II, plateaued during the 1950s and early 1960s, then fell sharply. Among boys 16 and 17 years of age, initiation of smoking showed a steady downward trend throughout the study period, and for those 15 years of age or younger, it either decreased slightly or remained fairly constant.

By the early 1980s, smoking initiation among both male and female adolescents aged 14 through 17 years was decreasing significantly (Gilpin and Pierce 1997). This downward trend was also observed among young adults aged 18 through 21 years. Although the decline in initiation of smoking continued among young adults, a parallel decline was not observed among adolescents aged 14 through 17 years. Smoking initiation among adolescents decreased from 5.4 percent in 1980 to 4.7 percent in 1984, then increased to 5.5 percent in 1989, possibly reflecting increased tobacco marketing expenditures between 1984 and 1989 (CDC 1995). The incidence of smoking initiation and the prevalence of smoking among adolescents continued to increase during a time of increased expenditures on new marketing strategies for promoting tobacco use. The prevalence of current smoking among female high school seniors increased from 25.8 percent in 1992 to 32.4 percent in 1996. The proportional increase among boys was similar (Johnston et al. 1996; University of Michigan 1996). This period includes the observed peak (1993) of advertising and promotion by the tobacco industry. (See Table 2.9 in Chapter 2 for prevalence rates of smoking among high school seniors, 1976–2000.)

The Joe Camel character debuted in January 1988, before the marked rise in the initiation of smoking among adolescents that occurred in 1993. The Teenage Attitudes and Practices Surveys indicated that brand preference for Camel increased from 8.1 percent in 1989 to 13.3 percent in 1993 (CDC 1994). Among adolescents who purchased their own cigarettes in 1993, 10.3 percent of girls and 16.1 percent of boys bought Camel cigarettes. During the same period, Marlboro cigarettes decreased in popularity (from 68.7 to 60.0 percent) but nonetheless continued to be the market share leader among adolescents; nearly the same percentages of girls and boys bought Marlboro (60.7 and 59.2 percent, respectively). It is possible that the Joe Camel campaign affected the popularity of Marlboro.

The trends in smoking initiation among adolescents suggested a relationship between tobacco marketing campaigns and smoking initiation but were not direct proof of cause and effect. One Australian survey of 5,686 schoolchildren aged 10 through 12 years used a "semantic differential" measure of approval or disapproval of cigarette advertising in general (Alexander et al. 1983). Children who approved of cigarette ads were more than twice as likely to adopt smoking at a follow-up of 12 months. In another Australian study of 2,366 children and adolescents (modal age, 12 years), respondents were asked whether cigarette ads made them think that they would like to smoke a cigarette (Armstrong et al.

Figure 4.8. Smoking initiation rates for 14- to 17-year-old girls, 1966–1979,* and expenditures for three cigarette brands† targeted to women, 1967–1978



*The initiation data were aggregated in two-year intervals. Therefore, the data point for 1978, for example, is actually for 1978–1979.

†Virginia Slims, Silva Thins, and Eve cigarettes.

Sources: Pierce et al. 1994; Pierce and Gilpin 1995.

1990). Youth indicating that the ad had some influence on them were about three times as likely to use cigarettes at the 2-year follow-up as were those who indicated that the ad had no influence. The magnitude of the effect was nearly the same among girls and boys and about the same as having a sibling of the same sex who smoked.

A study conducted in schools in England and Wales in 1986–1988 among 3,694 children aged 11 through 15 years sought detailed information on recall of common cigarette ads in magazines (Goddard 1990). Students were shown ads without any print identifying the brand and were asked to rate them as beautiful, quite nice, not very nice, or disgusting. Scores were constructed for recognition (number correct) and for liking (number called beautiful or quite nice). Although girls generally scored lower than boys on both measures, baseline scores were significantly higher among girls who smoked at the time of follow-up than among girls who did not; this difference was not apparent among boys.

In another British study, 2,338 boys and girls aged 12 and 13 years who had never smoked were surveyed and then surveyed again four months later, with similar results (Charlton and Blair 1989). The participants were asked to name a cigarette brand and whether they had a favorite brand. For girls, being able to name a cigarette brand was among the four factors, of nine possible factors, significantly related to smoking during the period between the surveys; none of the factors was significant for boys. Another British study, a longitudinal study of 9- and 10-year-old

Figure 4.9. Philip Morris launched advertising of Virginia Slims in 1968 with the slogan "You've come a long way, baby" and switched in the 1990s to "It's a woman thing"

Sources: From top to bottom: *Playboy* 1971; *Time* 1978; *Glamour* 1999.

Virginia Slims: A Case Study in Marketing Success

In the late 1960s, after more than a decade of substantial success with repositioning Marlboro as a masculine brand, Philip Morris decided to appeal to women through a new brand of cigarettes. Spurning strategies based on traditional feminine imagery, the tobacco company launched advertising for Virginia Slims in 1968, touting the 100-mm "slimmer than the usual" cigarette with the slogan "You've come a long way, baby" (*Advertising Age* 1968a, p. 33; *Advertising Age* 1968c, p. 2) (Figure 4.9). This advertising strategy showed canny insight into the importance of the emerging women's movement and enlisted several themes of that movement in its approach. The success of Virginia Slims and its advertising relative to competitive products and their advertising demonstrated the importance of image-based advertising in establishing an attitude and persona for the brand. It also made clear the greater appeal of ads that suggest attitudes of independence over those that emphasize frilly fashionability. The switch in the mid-1990s to the slogan "It's a woman thing" in ads for Virginia Slims cigarettes is a logical marketing response to the evolution of the women's movement—a theme the brand has always attempted to use to its advantage (Figure 4.9). In 1999, Philip Morris launched the Virginia Slims "Find Your Voice" campaign featuring women of diverse racial and ethnic backgrounds, including African Americans, Asians, Hispanics, and whites (Figure 4.10). The appearance of the models in the advertisements and the accompanying copy suggested that women in different ethnic and cultural groups have unique needs for self-expression, and the ads' slogan attempted to associate the Virginia Slims brand with fulfilling such needs: "Virginia Slims/ Find Your Voice."

Underlying the initial advertising campaign to launch the brand was the finding of motivation research that "cigarettes are either masculine or feminine but never successfully neuter" (Weinstein 1970, p. 4). After toying with several combinations of names and product variations, the advertisers focused on variants of "Virginia," because it was the home state of Philip Morris, the name of the marketing director's wife, and a "great name for a cigarette with a feminine personality. It not only has traditional tobacco overtones, but it romantically suggests moonlight, gentle breezes, and green hills" (Weinstein 1970, p. 4). The creation of brand personality would be achieved by using aspects of style, tone, music, and visuals, rather than information, because the advertising team believed that "in cigarette advertising… 90 percent of what you communicate is non-verbal" (Weinstein 1970, p. 13). This task, pursued by a staff that was initially all male, was described as "15 Guys in Search of a Feminine Identity" (Weinstein 1970, p. 1).

The advertising agency sought to capitalize on the product's distinctive thinness, which provided "visual intrigue," "tactile distinctiveness," and "style and grace" (Weinstein 1970, p. 2). The team also believed that the success of the pioneering king-sized Pall Mall cigarettes was due in part to how it flattered women—that is, "the extra length made their noses look shorter. Maybe this thin cigarette similarly could be liked because it makes your hand look slimmer and more graceful" (Weinstein 1970, p. 2).

However, the team rejected an overtly cosmetic appeal, such as a gold package or naming the product Vanity or Tiffany and promoting it in *Vogue*, for fear that this approach would make the brand a novelty product and appeal to too few women. They finally settled on a "fun personality for the brand—a lively, sparkly, happy cigarette" (Weinstein 1970, p. 13). They described the brand as "The first cigarette for women only,… designed slimmer for a woman's slimmer hands and lips; designed with the kind of flavor women like; and packaged in a slim purse pack" (Weinstein 1970, p. 7).

The advertising team created the concept of exploiting the issue of women's rights, which had reemerged in the late 1960s. They used the slogan "You've come a long way, baby" and ran copy that contrasted women's historical lack of rights with the modern situation in which women could have everything, even "a cigarette brand for [their] very own" (Weinstein 1970, p. 16). "Congratulations on your success" (Weinstein 1970, p. 20). The year that Virginia Slims was launched, its advertising was carried on 9 network television programs, on local television and radio, and in 16 women's publications and Sunday supplements (Sanchagrin 1968). Television programs that carried Virginia Slims ads included *Mission: Impossible*, *Family Affair*, *Hogan's Heroes*, *Mayberry R.F.D.*, *The Red Skelton Show*, *Green Acres*, Thursday and Friday night movies, and the *CBS Evening News*. Print ads to launch Virginia Slims appeared in *American Home*, *Cosmopolitan*, *Ebony*, *Family Circle*, *Glamour*, *Harper's Bazaar*, *Ladies' Home Journal*, *Life*, *Look*, *Mademoiselle*, *McCall's*, the *True Story* group, *TV Guide*, *Woman's Day*, *Vogue*, and *Women's Wear Daily* (*Advertising Age* 1968c).

The Virginia Slims campaign was very successful (*Advertising Age* 1970), and its slogan may have resonated with the rhetoric of the burgeoning women's movement of the late 1960s. However, one advertising trade column described the campaign as featuring a "rebellious but unliberated woman"

Figure 4.10. Ads from the multicultural "Find Your Voice" campaign

Sources: From top to bottom: *Glamour* 2000b; *Ladies' Home Journal* 2000a; *Glamour* 2000a.

(*Advertising Age* 1973, p. N8), and the inclusion of the word "baby" in the slogan resulted in some criticism from feminists (Kluger 1996). For more than two decades, ads in the campaign showed variations on the theme of a strikingly dressed, contemporary woman contrasted with unappealing background images of women in the past. But rarely, if ever, were the contemporary women portrayed as carrying out responsibilities; they were portrayed merely as very slim models wearing trendy styles. The ads mocked the older generation's experience, attitudes, and behavioral constraints, in part by contrasting new fashions with the old fashioned. Advertising agency personnel later explained that the agency wanted to avoid "the obvious trap of being too feminine" (*Advertising Age* 1968d, p. 2), but fashion was an important element in this campaign. In fact, Philip Morris placed an ad in *Women's Wear Daily* to thank the fashion trade for providing designs for its 1973 Virginia Slims campaign. The list of contributors included top designers Bill Blass, Pierre Cardin, and Halston (*Advertising Age* 1974a).

After January 2, 1971, when cigarette advertising was no longer permitted on broadcast media, the volume of advertising in women's magazines increased dramatically—threefold to fourfold from the first quarter of 1970 through 1971. For example, the number of pages devoted to cigarette advertising rose from 5 to 22 pages per quarter in *Ladies' Home Journal*, from 7 to 21 pages in *Redbook*, from 5 to 19 pages in *Woman's Day*, from 6 to 24 pages in *Cosmopolitan*, and from 7 to 21 pages in *Family Circle* (Revett 1971). This intensity of advertising in women's magazines continued into the 1980s. Regular readers of *Glamour, House & Garden, Ladies' Home Journal, Mademoiselle, McCall's, Metropolitan Home, Vogue,* and *Woman's Day* were exposed to about 100 cigarette ads annually in each magazine (Whelan 1984). Readers of *Better Homes and Gardens, Cosmopolitan, Family Circle,* and *Redbook* were exposed to 200 cigarette ads annually in each magazine, and reading *Newsweek, People, TV Guide,* or *Time* meant exposure to more than 400 ads per year. In 1974, Virginia Slims alone was supported by $8.3 million in advertising in magazines, newspapers, and Sunday supplements (*Advertising Age* 1974b).

Virginia Slims ran an award-winning premium promotion in 1977—the Ginny Jogger jogging suit. Persons who wanted to obtain the outfit were required to submit cash receipts and proof of Virginia Slims purchase (Robinson 1979). Some 30,000 sweat suits were distributed, 50 percent more than expected. In the mid-1970s, about 400,000 additional items were distributed, including 200,000 T-shirts bearing the slogan "You've come a long way, baby," 110,000 jerseys, and 70,000 sweaters. By the mid-1980s, the mix of promotional items had changed. The items were more likely to contrast the "then-and-now" choices of women and to highlight the availability of previously all-male goods (e.g., a little black book for telephone numbers, jogging suits, rugby shirts, and boxing shorts). A promotional history was introduced, the Book of Days, a hardbound appointment calendar noting dates in history, including the date when Virginia Slims were launched in 1968; historical anecdotes; and sexist quotations. It was reported that one million books were printed annually (Robinson 1985).

Virginia Slims started sponsoring women's professional tennis in 1970, and a full season of tournaments was played in 1971. That year, events were held in 20 cities and featured eight professionals, including Billie Jean King and Rosemary Casals (Brinkman 1976). Free samples of Virginia Slims were given away at stadium entrances (Ernster 1985), and contract players were not allowed to take public positions against cigarette sponsorship (Brinkman 1976). The brand's public relations firm developed a program for reaching the media with "stories and angles of interest that extended far beyond match results and sports pages…. The Virginia Slims media guide, published annually… became the encyclopedia of women's tennis" (Harris 1991, p. 208). Media luncheons were held at the start of the season in New York and before each event in every tournament city, where charity tie-ins created more publicity. Although cigarette advertising was banned from television, the Virginia Slims Tournament was covered by the networks (Harris 1991). A Philip Morris marketing vice president explained, "Virginia Slims gets worldwide publicity and an opportunity to sample adult audiences and to spin off retail promotions" (Harris 1991, p. 209). The company also gained grateful allies: in 1990, when the U.S. Secretary of Health and Human Services, Louis Sullivan, M.D., called for an end to sports sponsorships by cigarette firms, Zina Garrison and Billie Jean King supported the industry in press interviews (Harris 1991). In 1995–1996, Philip Morris ended its $5 million annual sponsorship of the Virginia Slims professional women's tennis tour, replacing it with the annual Virginia Slims Legends Tour, at a cost of approximately $3 million. This six-stop event combined a tournament of former tennis greats (e.g., Billie Jean King, Chris Evert, and Martina Navratilova) and a concert featuring prominent female singers (e.g., Barbara Mandrell and Gladys Knight). The stated intention of the new tour was to reach older women (IEG 1995b).

children followed for several years, found that among girls, those aware of the most heavily advertised cigarette brands (Benson and Hedges, Silk Cut) were significantly more likely to start smoking than were those who named other brands (While et al. 1996). A longitudinal study of more than 1,000 Massachusetts youth found that exposure to brand-specific cigarette advertising in magazines was associated with later smoking initiation of these brands (Pucci and Siegel 1999). Among girls, the top seven brands were Marlboro, Camel, Newport, Winston, Capri, Virginia Slims, and Kool.

A number of other studies have investigated advertising awareness, self-image, and perceived attributes of smokers (USDHHS 1994). One of these studies showed that more than 90 percent of 6-year-olds tested in day-care settings in Atlanta and Augusta, Georgia, were able to match the Old Joe (Camel) logo to cigarettes, about the same percentage that could link Mickey Mouse to the Disney channel (Fischer et al. 1991). The tobacco industry attacked this study and funded research in Australia designed to replicate the study and to eliminate some of its alleged shortcomings (Mizerski 1995). Study results confirmed that, in Australia too, recognition of Old Joe was high and increased with age (72 percent of 6-year-olds). The study also assessed, in a matching exercise, the children's liking for products by having them point to a picture of a smiling or frowning face. Forty percent of 3-year-olds but fewer than 5 percent of 5-year-olds demonstrated a liking for cigarettes. The author concluded that, because a high level of recognition was not associated with positive affect, advertising did not encourage children to smoke. This study, however, like the others cited, was not designed to examine the association between early recognition of a cigarette brand logo and later initiation of smoking. Perhaps the more significant observation in all these studies was the high level of recognition of the Joe Camel icon and its association with cigarettes, even among young children.

Whatever children's view of smoking may be, as they approach the middle-school years, they become increasingly concerned with self-image, and messages contained in tobacco advertising and promotions likely play a role in changing their attitudes and behaviors (Arnett and Terhanian 1998; Feighery et al. 1998). Using data from the youth portion of the 1993 California Tobacco Survey, a study from California (Evans et al. 1995) identified an association between receptivity to tobacco marketing and susceptibility to smoking. (A separate longitudinal study identified susceptibility to smoking at baseline as being predictive of future cigarette use [Pierce et al. 1996]). Beside naming a favorite tobacco ad or believing in the benefits of smoking promoted by tobacco advertising, the index of receptivity to tobacco marketing in the California study included possession of a tobacco promotional item, such as a key chain, lighter, or T-shirt with a tobacco brand logo on it. The association between possession of a tobacco promotional item and susceptibility to smoking (Evans et al. 1995) was verified in two other cross-sectional studies, one that involved a national sample of adolescents (Altman et al. 1996) and one that included students in rural New England (Sargent et al. 1997).

Promotional items are typically obtained at the point of sale as a premium or from coupon redemption. However, many adolescents also obtain them as gifts from family or friends (Gilpin et al. 1997; Sargent et al. 1997). In 1993, a national study of U.S. girls and boys aged 12 through 17 years showed that 35 percent had collected tobacco coupons (e.g., Camel Cash and Marlboro Adventure Miles), had a promotional catalog, or owned a promotional item (Coeytaux et al. 1995). More than 1 in 10 of the girls and boys (10.6 percent) reported having owned at least one tobacco promotional item. Extrapolating to the entire population of U.S. girls and boys aged 12 through 17 years, the authors estimated that 7.4 million had participated in a tobacco promotional campaign. The amount of the tobacco marketing budget devoted to promotions of this sort, in contrast to traditional print advertising, has increased substantially since 1985 (Gilpin et al. 1997; Redmond 1999). The deviation from observed prevalence and prevalence predicted by a diffusion model of daily smoking among ninth graders nationwide (based on a series of cross-sectional surveys) was correlated with the upswing in tobacco promotional expenditures (Redmond 1999).

A recent longitudinal study further demonstrated the relationship between tobacco promotional items and smoking initiation among youth. In 1996, youth who participated in the 1993 California Tobacco Survey were contacted again for a study funded by The Robert Wood Johnson Foundation. Among those who were not susceptible to smoking and who had never smoked in 1993, receptivity to tobacco marketing predicted those who became susceptible to smoking or who smoked by 1996 (Pierce et al. 1998). Receptivity to tobacco promotional items (having a promotional item or being willing to use one) carried 2.89 times the risk for progression toward smoking than did minimal receptivity. Receptivity to tobacco

advertising (having a favorite tobacco ad, but not owning or being willing to use a promotional item) carried a 1.82 increased risk. Minimally receptive adolescents had no promotional items, would not be willing to use one, had no favorite cigarette ad, and could or would not name a brand as being the most advertised. No interaction of advertising receptivity with gender was observed, and the analysis adjusted for demographics, school performance, and parental and peer smoking. From this study, it was estimated that 34 percent of adolescent experimentation with cigarettes can be attributed to tobacco advertising and promotions. Another longitudinal study of 529 Massachusetts teens aged 12 through 15 years, interviewed in 1993 and again in 1997, produced very similar findings (Biener and Siegel 2000).

Themes in Tobacco Marketing Targeted to Women

As noted, tobacco marketers target particular brands and messages to women (Ernster 1985; Amos 1992; Amos and Bostock 1992a; USDHHS 1994). The brand image of some cigarettes is unmistakably feminine, and most of their consumers are women. The fact that smoking among women in North America has become so widely acceptable, if not desirable, is a remarkable cultural shift that has its roots in the effective promotion of smoking as a symbol of freedom and emancipation (Amos and Haglund 2000). However, brands developed exclusively for women (e.g., Virginia Slims, Eve, Misty, and Capri) account for only 5 to 10 percent of the total cigarette market (*Marketing to Women* 1991). Because women represent nearly one-half of all smokers, many women are obviously attracted to brands that appear gender neutral or overtly targeted to men.

Warner and Goldenhar (1992) examined the advertising revenues of 92 magazines published in 1959–1986. The relative share of cigarette advertising revenues by magazine category over these 28 years was determined. Magazines were coded in categories as women's, sports, news, highbrow, professional, crafts and trade magazines, or other. Relative share was defined as a "category's percentage of cigarette advertising revenues in the sample of 92 magazines divided by its percentage of total advertising revenues" (Warner and Goldenhar 1992, p. 25). Relative share during 1983–1986 was highest among crafts and trade magazines (1.78) and sports magazines (1.76). However, the relative share of cigarette advertising revenues increased from 0.14 to 1.11 among women's magazines over the 28 years covered by the study, and between 1983 and 1986 it grew faster among women's magazines than for any other category of magazines. Included among the 18 publications in the women's magazines category were *Better Homes and Gardens, Cosmopolitan, Ladies'Home Journal,* and *Working Woman.*

That tobacco marketing targeted to women emphasizes themes such as slimness, women's equality, freedom of choice, independence, glamour, and romance is widely acknowledged (Altman et al. 1987; Albright et al. 1988; Guinan 1988; Krupka et al. 1990; Krupka and Vener 1992; Covell et al. 1994; Califano 1995). A number of empirical studies supported this view. An analysis of 1,827 ads in five popular magazines (*Good Housekeeping, Look, Newsweek, Sports Illustrated,* and *TV Guide*) across three time spans (1950–1951, 1960–1961, and 1970–1971) examined ads for tobacco, nonalcoholic beverages, automobiles, home appliances, office equipment, and airline travel (Sexton and Haberman 1974). Tobacco ads accounted for 24 percent of all ads. In the 1950s, ads typically portrayed women as models or public personalities, rather than as social companions, employees, or consumers, and women were generally presented in the background rather than as central figures. In the 1960s and 1970s, women were portrayed primarily as social companions or dates, not as employees, housewives, or mothers (Sexton and Haberman 1974).

In a content analysis of 778 tobacco ads in eight popular magazines (*Rolling Stone, Cycle World, Mademoiselle, Ladies'Home Journal, Time, Popular Science, TV Guide,* and *Ebony*) published in 1960–1985, Altman and colleagues examined the extent of segmentation and the themes of ads (Altman et al. 1987; Albright et al. 1988; Basil et al. 1991). The percentage of tobacco ads in women's magazines increased substantially over time. By 1985, cigarette ads in women's magazines comprised 34 percent of all cigarette ads across the eight magazines, up from about 10 percent in 1960. A study of magazines for youth published in 1972–1985 showed a similar trend (Albright et al. 1988). In all magazines, ads that showed the act of smoking or visible smoke decreased over the study period (Altman et al. 1987). In contrast, the association of smoking with health and vitality and with images of risk, adventure, recreation, and eroticism increased. Compared with other magazines, women's magazines were more likely to have ads for low-tar, low-nicotine brands of cigarettes and ads featuring sexual images and were less likely to have ads featuring adventure or risk themes (Altman et al. 1987). In a

follow-up study that added *Jet* and *Essence* to the database and extended the years of study to 1989, models in cigarette ads in women's magazines were more likely than models in men's magazines to be portrayed as coy or seductive or to be engaged in horseplay or romantic situations (Basil et al. 1991). Covell and colleagues (1994) found that among adolescents, girls had a stronger preference than boys for image-oriented ads.

An analysis of 74 popular magazines published in 1988, one-half of which were women's magazines, showed that 63 percent of 241 tobacco ads were in women's magazines (Krupka et al. 1990). Statistical tests were not used, but tobacco advertising in women's magazines was reported to be more likely than that in men's magazines to feature low-tar, low-nicotine cigarettes (13.7 vs. 6.6 percent) and themes of social success (10.2 vs. 7.2 percent), refreshment or pleasure (8.4 vs. 6.6 percent), or independence or self-reliance (7.1 vs. 1.1 percent) and to use models with attractive and lean silhouettes (13.5 vs. 0.6 percent). Tobacco ads in men's magazines were more likely than those in women's magazines to focus on taste, flavor, or quality (24.3 vs. 16.4 percent); masculine activities (25.4 vs. 6.7 percent); prize giveaways (8.3 vs. 3.9 percent); and leisure, excitement, or thrill (6.1 vs. 1.8 percent). In a content analysis of 352 tobacco ads in 18 popular magazines in 1945, 1955, 1965, 1972, and 1985, England and coworkers (1987) demonstrated that advertising themes changed substantially over time; only the theme of taste endured. By 1985, ads using testimonials and emphasizing the quality of the tobacco no longer appeared, and portrayal of models holding cigarettes dropped by one-third. Instead, ads focused on attributes such as low tar content, filters, and the cigarette length. The gender and activity of models differed across magazine types. Ads that showed women engaged in activities were more likely to appear in women's magazines (25.3 percent) than in general or news magazines (6.5 percent) or men's magazines (1.9 percent). Ads that showed men engaged in activities were more likely to appear in men's magazines (52.3 percent) than in general or news magazines (40.0 percent) or women's magazines (18.7 percent). The proportion of ads that showed both women and men engaged in activities did not differ markedly by magazine type (33.3 percent in women's magazines, 23.4 percent in men's magazines, and 30 percent in general or news magazines).

Cigarette advertising targeted to women has long been characterized by themes such as thinness, style, glamour, sophistication, sexual attractiveness, social inclusion, athleticism, liberation, freedom, and independence (Howe 1984; Elkind 1985; Ernster 1985, 1986; Kilbourne 1989). Through the years, ads have depicted these themes in a variety of ways. Salem used a romantic appeal of "springtime, green fields, and soft summer dresses" (Weinstein 1970, p. 10). In 1970, Brown & Williamson introduced Flair, a fashion cigarette for women, in test markets (O'Connor 1970). The next year, Liggett & Myers introduced Eve, which had a feminine floral design on the filter (*Advertising Age* 1970) (Figure 4.11). Because of the impending ban on broadcast advertising, Eve's introduction was backed by a flood of print advertising, and successful test marketing was conducted in four cities. The national campaign included ads in *TV Guide*, women's magazines (including *Ebony, Essence,* and *Tuesday* for black women), and periodicals devoted to house and gardens topics. Other venues were entertainment programs such as *Playbill*, full-color newspaper ads, Sunday supplements, and outdoor advertising in the top 25 markets. The ultrafeminine floral design of Eve, however, did not prove as popular in its appeal as the pseudoliberated appeal of Virginia Slims. In 1974, Eve was repackaged and repositioned to "free the brand from total domination by its packaging," because executives believed it was not "perceived as a real cigaret" (O'Connor 1974, p. 8). The new ad copy read "We asked her if she wanted a ladylike cigaret. She said, 'Hell, no'" (O'Connor 1974, p. 8).

In the 1980s, women's brands remained an important element in cigarette advertising. Lorillard's ads for the Satin brand appealed to self-indulgence—"Spoil Yourself with Satin"—and targeted the woman who was "self-confident, relaxed, realizing her goals" (Sobczynski 1983, p. M-15) (Figure 4.11). The More brand offered a long, thin cigarette to women, "especially the 18 to 34 year old female who considers herself to be sophisticated" (Sobczynski 1983, p. M-15) (Figure 4.11). The director of marketing for More said, "Cigarets are a product people first wear, then smoke" (Masloski 1981, p. S-7). The extra-long brown More 120s "appeal to older more sophisticated women—women who are stylish, assertive, [and] want to call attention to themselves" (Masloski 1981, p. S-7). The premium-priced Ritz, a name suggesting an "opulent life style" (Hollie 1985, p. 29), was designed by Yves Saint Laurent and sold by R.J. Reynolds. It was intended to set a "new standard of stylishness" and targeted "the fashion-conscious woman… probably single, owns a designer handbag, reads *Vogue* and spends a high percentage of her

Figure 4.11. Tobacco marketers targeted particular brands to women—Eve, Style, Satin, and More

Sources: Clockwise from top left: (Eve, Style, and Satin) Tobacco Industry Promotion Series, Faculty of Commerce, History of Advertising Archives, University of British Columbia, History of Advertising Archives, Vancouver, Canada; (More) *Ladies' Home Journal* 1986.

income on clothes" (Hollie 1985, p. 29). A Lorillard brand was bluntly labeled Style (Figure 4.11).

By the end of the 1980s and into the 1990s, cigarette manufacturers were using various technologies to make products that would appeal to women. Virginia Slims offered a variant called Superslims (Figure 4.12) that was not only even thinner than the original cigarette but was also claimed to reduce sidestream smoke, and Capri offered "the slimmest slim" (Figure 4.12).

R.J. Reynolds placed four-page ads in women's magazines for the novel Chelsea brand, which had a vanilla-like scent. This campaign included the industry's first "scratch-and-sniff" ad. New paper technology allowed release of a similar aroma while the cigarette was lit, thus masking the smell of ambient smoke (Dagnoli 1989). Chelsea was promoted with a compact lighter featuring a small mirror, coupons for free packs of cigarettes, and in-store, buy-one-get-one-free offers. In the fall of 1995, ads for Capri

Figure 4.12. By the late 1980s and into the 1990s, cigarette manufacturers were trying to make products more appealing to women: Superslims, with the claim of reduced sidestream smoke; "slim 'n sassy" Misty; and Capri, "the slimmest slim"

Sources: Clockwise from bottom left: Tobacco Industry Promotion Series, History of Advertising Archives, Faculty of Commerce, University of British Columbia, Vancouver, Canada; *Marie Claire* 1995; *Allure* 1995a.

Superslims appeared in women's magazines with the slogan "She's gone to Capri and she's not coming back" (*Allure* 1995a). These ads featured thin models, glamorously or romantically dressed, posed in a European isle setting and holding the ultraslim cigarette (*Allure* 1995a; *Cosmopolitan* 1995a).

One ad that featured women, but presumably was not targeted to women, deserves mention because negative press and opposition by women's groups, as well as health advocacy organizations and members of Congress, led to its eventually being pulled by the manufacturer. It was a four-page ad for Camel cigarettes placed by R.J. Reynolds in 1989, as part of its "Smooth moves" campaign (*Health Letter* 1989, cover; *Time* 1989). The first page of the ad pictured an alluring blonde woman with the caption "Bored? Lonely? Restless? What You Need Is…." The middle two pages provided "foolproof dating advice" (e.g., "always break the ice by offering her a Camel") and tips on how to impress someone at the beach (e.g., "Run into the water, grab someone and drag her back to the shore as if you've saved her from drowning. The more she kicks and screams, the better"). The final page instructed readers on "how to get a FREE pack even if you don't like to redeem coupons" (e.g., "ask your best friend to redeem it or ask a kind-looking stranger to redeem it") (*Health Letter* 1989, cover).

Contemporary Cigarette Advertisements and Promotions

A variety of approaches were used to promote the Virginia Slims brand in the 1990s. One ad for Virginia Slims Lights showed a young couple dressed casually in blue and white who were playing backgammon outdoors. The copy read "Who says you can't make the first move?" and "You've come a long way, baby" (*Harper's Bazaar* 1995). A more suggestive ad showed a model posing under a palm tree clad in animal-print clothing that matched the red and black copy, "Tame and timid? That goes against my instincts" (*Cosmopolitan* 1995c). Other Virginia Slims ads promoted merchandise. One, in pinks and whites with copy that read "Glamour… Gotta have it," portrayed a glamorous blonde woman and offered the latest V-Wear (clothing and accessories) catalog (*People* 1995d). In another ad, an alluring blonde woman dressed in a satiny white suit offered the Virginia Slims calendar with a white, black, and red color scheme (*Vanity Fair* 1995b). Beginning in late 1999, Philip Morris promoted Virginia Slims in a multicultural campaign with the tagline, "Find Your Voice" (Figure 4.10). The underlying message of this campaign was freedom, emancipation, and empowerment. In a harsh critique of this campaign, the editors of *Ms.* magazine wrote in the June/July 2000 issue: "In their relentless quest to get and keep women hooked on smoking, the Virginia Slims folks give the term 'pimp' new meaning. They've long hitched their cancer sticks to women's liberation with smarmy pitches like 'You've come a long way, baby.' Now Virginia Slims has set its sights on globalizing addiction and equalizing smoking-related illnesses. In their latest campaign, which debuted in the fall of 1999, they issue a cynical, multicultural call to women to 'find your voice.'"

Misty, also heavily advertised in women's magazines, used head shots of attractive women holding the slim cigarette. The copy read "Slim 'n sassy… slim price too" (*Marie Claire* 1995). The colors in the Misty brush-stroke logo (pink, blue, green, and yellow) were repeated in the copy, background, clothing, and accessories (Figure 4.12).

Ads targeted to gays and lesbians for major tobacco brands have appeared since at least the early 1990s (Goebel 1994). For example, a Virginia Slims ad featured a man and woman walking together, with the woman smiling over her shoulder at another woman and a caption that read, "If you always follow the straight and narrow, you'll never know what's around the corner."

Gender-neutral brands often feature young couples. A Merit ad, for example, showed a couple embracing, each in a leather jacket, with the slogan "You've got Merit" (*New Woman* 1995b). Parliament ads showed casually dressed couples, sometimes in swimwear, in a pristine setting of crystal-clear skies and blue water (*People* 1995a). Either the woman or man held the cigarette, and the slogan "The perfect recess" was the only copy, along with the blue and white Parliament package.

Ads for brands seemingly targeted to men (e.g., Marlboro) but popular too among women have also appeared in women's magazines. Marlboro ads featured cowboys in outdoor pursuits, often under deep blue skies and beside or in very blue water (*Glamour* 1995a; *Vogue* 1995c). White, gold, blue, and red were the key colors used, with slogans such as "Come to Marlboro country" and "Some mornings, it's quiet enough to hear the break of day."

Rarely, an ad focuses on the product itself. For example, Carlton ads displayed only the package, a woman's hand against a blue satin background, and copy that read "Carlton is lowest" (*Ladies' Home Journal*

1995; McCall's 1995). Fine print claimed that Carlton was the lowest in tar and nicotine of the king-sized, soft-pack cigarettes.

Some research suggested that women of all ages are more responsive than men to the price of tobacco (Townsend et al. 1994), and discount brands such as Basic and Doral are heavily advertised in women's publications. Ads for Basic showed a red-and-white cigarette pack against a white background and objects with corresponding copy, such as a white sun lounge with "Your basic smoking lounge" (*New Woman* 1995a, p. 131) or T-shirts, jeans, and sneakers bearing the message "Your basic 3-piece suit" (*Entertainment Weekly* 1995, p. 33). Ads included the slogan "It tastes good. It costs less" (*New Woman* 1995a).

Camel ads featuring the macho cartoon character Joe Camel were first introduced in 1987 (*Mademoiselle* 1995). In 1994, Camel ads debuted Joe's female counterpart, Josephine, who was featured in four-page foldout ads that showed female and male camel characters drinking, smoking, shooting pool, and socializing at Joe's Place. The slogan was "There's something for everyone at Joe's Place" (Goldman 1994; *Redbook* 1994). The Josephine ads soon disappeared, but a Camel collector's pack was introduced in magazine ads in 1995. These ads, which showed a glamorous starlet as she appeared on the package in 1934, carried the slogan "This woman has a past" (*Vogue* 1995b).

Advocacy ads sponsored by tobacco companies also appeared in magazines with predominantly female audiences. Philip Morris placed a series of ads with the theme "We want you to know where we stand," ridiculing attacks on smokers, supporting freedom of choice, or explaining the company's new program to limit youth access to cigarettes (*Allure* 1995b; *Glamour* 1995b; *Vanity Fair* 1995a). Ads for Philip Morris' Benson & Hedges cigarettes spoofed nonsmoking restrictions in public places in a series of ads on the theme "The length you go for pleasure." Ads (*Cosmopolitan* 1995b) showed smokers eating in an open-air restaurant atop a pole several stories aboveground, business persons smoking while perched on carved figures along a public building's roofline (*Vanity Fair* 1995c), and commuters smoking atop a speeding train (People 1995e).

R.J. Reynolds' "Survival Guide for the 90's" ad offered a cartoon-illustrated "common sense guide to life in the nineties" (*People* 1995b). It depicted situations in which smoking is awkward, alongside other modern frustrations such as long lines at automated tellers, sweaty gym equipment, and violators in supermarket express lanes. The ad noted that "Together, we can work it out," that "Most smoking issues can be resolved through dialogue," and that "Discussion will help solve the issues without further Government intervention."

The most successful women's brand, Virginia Slims, has offered a yearly engagement calendar and the V-Wear catalog featuring clothing, jewelry, and accessories coordinated with the themes and colors of the print advertising and product packaging. The theme of the fall 1995 advertising campaign was glamour, and the catalog offered a purple satin charmeuse blouse (with proof of purchase of 125 packs of cigarettes), rhinestone bangles (55 packs), a camel coat trimmed in faux leopard (325 packs), a classic sweater set in the raspberry color of the advertising copy and product packaging (200 packs), makeup brushes wrapped in a raspberry satin pouch (65 packs), a black coat lined in raspberry (325 packs), and other accessory items. Marketing themes were carried through in stores, where small plastic shopping baskets and checkout lane markers featured ads for Virginia Slims and purchases were slipped into plastic drawstring bags bearing the Virginia Slims logo and colors (*People* 1995d).

To promote Capri Superslims, Brown & Williamson used point-of-sale displays and value-added gifts. Multiple-pack boxes contained premium items such as mugs and caps bearing the Capri label in colors coordinated with the ad and package. A single-pack package contained a Capri lighter. Underscoring the long length of Capri Superslims, a free umbrella and two packs of cigarettes were sold in a tall box. The American Tobacco Company's Misty Slims also offered color-coordinated items in multiple-pack containers. An address book, cigarette lighter, T-shirt, fashion booklet, and Rand McNally guide to factory outlet shopping malls carried through the Misty advertising "look" (Trinkets and Trash: A Collection of Tobacco Product Advertising and Promotion, 1999, personal collection of John Slade, University of Medicine and Dentistry of New Jersey, New Brunswick, NJ).

R.J. Reynolds' catalogs offered items that could be redeemed by using the Camel Cash notes (C-notes) in cigarette packs. Items included a Midnight Oasis leather lipstick holder (40 C-notes), ladies' nightshirt (60 C-notes), camel necklace (20 C-notes) and earrings (21 C-notes) and many items of clothing and sporting gear, as well as lighters, barware, and accessories (*Redbook* 1994). Philip Morris offered the Marlboro Country Store: empty packs could be exchanged for clothing bearing the Marlboro logo. In addition, the campaign helped the company to develop a database

of smokers and provided millions of Americans with logo-bearing items to wear or use (Zinn 1994). Philip Morris also spent $200 million on its Marlboro Adventure Team catalog, which featured outdoor equipment and clothing (Zinn 1994). R.J. Reynolds has invested resources in so-called "relationship marketing." For example, in 1999 in Tobaccoville, North Carolina, where R.J. Reynolds' largest tobacco plant is located, the company held a party with music, blackjack, and free cigarettes for 3,700 of its customers (Doral Brand smokers) (Fairclough 1999).

Another form of promotion combined giveaways with advocacy advertising. Themes such as freedom and liberty were used to promote smokers' rights. For example, Brown & Williamson mailed its customers a crystal Christmas tree ornament etched with the image of the Liberty Bell and the B&W logo. The ornament came in a pouch inside a gilt-engraved display carton that bore a quote from the chief executive officer emphasizing the importance of Americans having the freedom to make informed choices. Philip Morris enclosed a two-pack box of Benson & Hedges with a deck of playing cards imprinted with a photograph of tourists climbing the head of the Statue of Liberty. These promotions were not specific to one gender or the other, but they may have had considerable appeal to women (Trinkets and Trash: A Collection of Tobacco Product Advertising and Promotion, 1999, personal collection of John Slade, University of Medicine and Dentistry of New Jersey, New Brunswick, NJ).

The tobacco industry is not uniformly successful in its efforts to tailor smoking messages to target audiences. Although the campaigns for Virginia Slims and several other brands targeted to women struck a responsive chord, the campaign to promote Dakota, a cigarette that targeted the "virile female," did not (Specter 1990, p. A-1). After a complex series of marketing events, in which antitobacco advocacy played a considerable role, the product was eventually withdrawn (see text box "Dakota: A Case Study in Marketing Failure").

In June 2000, during the time when chief executives of tobacco companies were testifying during the Florida class-action suit against them, Philip Morris announced that it was removing tobacco advertisements from 42 magazines because it was concerned about the teen readership of these magazines (*Advertising Age* 2000). Whether this was true or not, this step indicated that in recent years, concern over teen exposure to tobacco advertisements has become part of the public dialogue.

Sponsorship

Tobacco company sponsorship has included sporting events; women's fashion and cultural events; and women's political, ethnic, and research activities. The preeminent example of sponsorships targeted to women is women's tennis, an activity that capitalizes on the attributes of independence, assertiveness, and success. Virginia Slims and Kim, its British counterpart (Elkind 1985), have used television coverage and other media outlets to promote their brand names and logos (Ernster 1985). At one Wimbledon match, Martina Navratilova wore a tennis outfit in the colors of Kim packaging and bearing the Kim logo (Ernster 1986).

R.J. Reynolds' More brand sponsored a series of fashion shows in shopping malls that were tied to advertising in fashion magazines. Designers in the fashion industry received More Fashion Awards (Ernster 1988). Tobacco companies have also sponsored rock concerts and other music concerts with high appeal to female audiences.

Tobacco company sponsorships have benefited the arts as well. For example, tobacco companies sponsored a national tour of The Joffrey Ballet, performances of the Alvin Ailey American Dance Theater, an exhibit featuring photographs of Dr. Martin Luther King, Jr., the Arts Festival of Atlanta (Georgia) (a family event with more than 10 million attendees), and the Vatican Art Exhibit at The Metropolitan Museum of Art (New York, New York) (Ernster 1988; Lynch and Bonnie 1994; IEG 1995b). In 1995, Philip Morris spent $1.2 million to sponsor 15 dance companies (e.g., American Ballet Theatre, Dance Theatre of Harlem, and The Joffrey Ballet) and two dance events (IEG 1995b).

Sponsorships of festivals and fairs, such as the Kool Jazz Festival and Hispanic Cinco de Mayo street fairs, create dependence on the tobacco industry for community cultural events (Lynch and Bonnie 1994). Marlboro (Philip Morris) sponsored 18 major fairs in 1995 (e.g., state fairs in Illinois, Ohio, and Texas) and spent $850,000 to reach 20 million family members. In 1996, Lorillard's Newport brand sponsored 31 New York City family and children's events at a cost of $155,000 to reach more than 15 million attendees. These events included the Second Avenue Family Festival, the Great July 4th Festival, the Avenue of the Americas Family Expo, and, in collaboration with the Sierra Club, Earth Day (IEG 1995b).

Civic improvement has also received tobacco sponsorship. Brown & Williamson supported the Kool Achiever Awards to recognize persons who

Dakota: A Case Study in Marketing Failure

Loss of broadcast media outlets and recognition of the heterogeneity of current and potential women smokers have led to two important trends in cigarette marketing: an increasingly high degree of specificity in the psychological research on and definition of the target consumer, and the increasing and now dominant use of promotions, sponsorships, and public relations instead of conventional media advertising. These trends are illustrated by R.J. Reynolds' promotional plan for the Dakota brand (Freedman and McCarthy 1990; Trueheart 1991). Information on this plan came to light after an anonymous insider sent information to advocacy groups (USDHHS 2000).

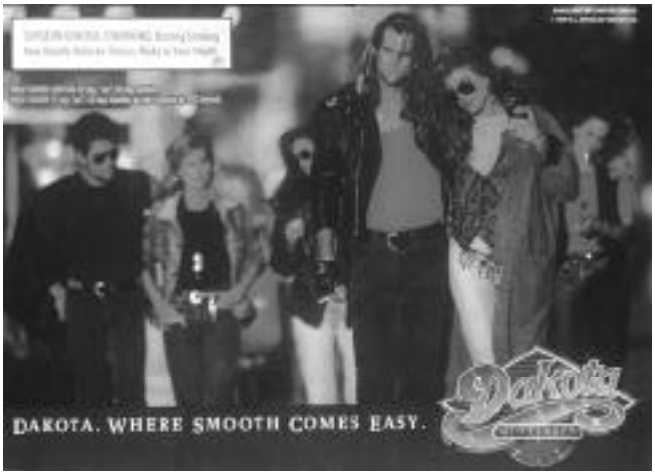
Market research had shown the potential to influence poorly educated, young, blue-collar women, some of whom were described as "virile females" (Specter 1990, p. A-1). Documents on the promotional plan for Dakota cigarettes described the consumers targeted by the company as women who appreciated traditional "masculine" values—particularly being "independent, in control, self-confident"—and who might otherwise smoke Marlboro cigarettes (Project VF Recommended Next Steps, unpublished data). The targeted women were 18 through 24 years old, with no education beyond high school. They held entry-level service or factory jobs, had no career prospects, and had a high probability of being unemployed or employed only part time. Their clothes were casual (e.g., jeans, knit tops, sweaters, shorts, warm-up suits, and sweatshirts and sweatpants), and they wore little makeup. Their taste in television programs included evening soap operas and situation comedies with working-class heroines, such as Roseanne, and their music tastes centered on all-male, classic rock bands. According to the promotional plan, the virile female spent her free time with her boyfriend, "doing whatever he is doing" (*Trone Advertising* 1989, p. 5) and aspired to getting married in her early twenties and having a family. She and her friends pursued interests such as "cruising" (*Trone Advertising* 1989, p. 5), partying, listening to classic rock and roll, attending various motor sports (e.g., drag races, hot-rod shows, tractor pulls, and motorcycle races), playing softball and bowling, watching wrestling and "Tough Man" (*Trone Advertising* 1989, p. 6) competitions, and attending fairs and carnivals. These characteristics were described as "hot buttons" for appealing to the virile female and her friends (*Trone Advertising* 1989, p. 7).

Forty package backgrounds and 40 names for the new brand were tested in Philadelphia, Pennsylvania. Several variations in packaging and product were considered, including a slide box, a foil inner seal, a wider cigarette, and a slower burning cigarette with a higher puff count. Research explored the packaging colors blue, brown, and burgundy. The women in the focus group preferred burgundy, rating the color as "unique/different, attractive, friends would carry, high quality, modern/contemporary" (Project VF Packaging Test, unpublished data). Consumers in Atlanta were the test group for 120 ad concepts for this new brand of cigarettes, and evaluations by consumers in Baltimore, Maryland, were subsequently used to refine 50 ad concepts. The selected set of advertising images was tested with five focus groups of Marlboro smokers in Chicago, Illinois, who were 18 through 20 years old (Gene Shore, President, Gene Shore Associates, letter to Penny Cohen, Marketing Research Manager, R.J. Reynolds Company, September 5, 1989).

The tested ads seemed successful in conveying the desired imagery of "independent yet approachable, sociable yet also enjoying her own company, feeling equal to men yet enjoying a warm fun relationship with a man," without alienating younger males (Gene Shore, President, Gene Shore Associates, letter to Penny Cohen, Marketing Research Manager, R.J. Reynolds Company, September 5, 1989) (Figure 4.13). Negative reactions to the tested ads occurred either among women with "traditional values" who did not aspire to the "Dakota woman's independence, assertiveness and control" or among the "more conservative/introverted respondents [who] may have felt somewhat threatened by the strong personalities conveyed" (Gene Shore, President, Gene Shore Associates, letter to Penny Cohen, Marketing Research Manager, R.J. Reynolds Company, September 5, 1989). Several slogans using "smooth" were tested, including "Smooth. Streetwise," "Smooth revolution," and "Smooth action. Slow burn." "Where smooth comes easy" was preferred for its consistency with the "attitude/personality" of the Dakota woman (Gene Shore, President, Gene Shore Associates, letter to Penny Cohen, Marketing Research Manager, R.J. Reynolds Company, September 5, 1989). Marketing choices emphasized point-of-sale merchandising and materials usable in promotional venues, such as bars. Promotional items considered were "door decals, in/out stickers, floormats, change cups, banners, neon signs, counter mats, 3-D (three-dimensional) motion signs, clock[s], gas pump toppers, and store hour signs" (*Trone Advertising* 1989, p. 36).

Promotional activities for the Dakota brand were intended to be "tightly targeted [and] extremely impactful and [to use] innovative communication techniques" (Promotional Marketing, Inc. 1989, p. 2). Many promotional concepts were developed, corresponding to the many hot buttons and interests of the targeted women. One proposal was a "Night of the Living Hunks" contest, for which the

Figure 4.13. Dakota ad conveys the image of women enjoying warm, fun relationships with men



Source: Tobacco Industry Promotion Series, History of Advertising Archives, Faculty of Commerce, University of British Columbia, Vancouver, Canada.

prize was a date with a male stripper. The targeted women's interest in romance suggested a soap opera trivia contest and free copies of a customized Dakota romance novel in exchange for redeemable one-pack coupons. Other ideas included limousine parties, vouchers for car shows, and parties in large parking lots where participants could pose against a Dakota backdrop while a camera generated poster-sized pictures. "Party packages" custom designed for women's "hot spots" (e.g., bowling alleys, bars, apartments, and company picnics) (*Trone Advertising* 1989, p. 31) were also proposed. Packages would include decorations, games, prizes, supplies, and samples of Dakota cigarettes (*Trone Advertising* 1989).

Detailed tactical plans and budgets were developed for several promotions related to the targeted women's inclination to patronize bars with rock and roll music. Participating bars and clubs would receive a video jukebox featuring the Dakota colors and logo. An all-male rock band would be named Dakota and perform at local clubs surrounded by a large Dakota banner. The band's clothing, stage materials, and limousine all would bear the Dakota logo. Women in the audience could receive, in a special Dakota folder, instant photographs of themselves with the band. Cassettes of the Dakota band would be handed out with a sweepstakes form to collect names for a direct-mail list; winners would have pictures taken with the band, would be given clothing with the Dakota logo, and would be "official Dakota Groupies for a night" (Promotional Marketing, Inc. 1989, p. 6). Auditions would be held for a girl singer to perform as guest artist; posters in clubs, newspaper ads, and direct mail would publicize this competition. Dakota would conduct screen tests for five finalists to appear in a "feature role" in a music video of the band. Registration, which would be conducted in clubs, required that another person, such as a friend, sign up screen test participants so that both names could be captured for mailing lists. A "Rock Until You Drop" event was to be publicized by a local radio station and hosted by its disc jockey. Two stages would allow for continuous music, and Dakota samples would be distributed during the event. Before this mega Battle of the Bands event (Promotional Marketing, Inc. 1989, p. 8), Dakota parties in nightclubs would award free tickets, limousines, and drinks to selected entrants. All entries would provide names and addresses for the mailing list. Implementation in test markets called for weekly distribution of 500 T-shirts, 30 jackets, 1,000 Polaroid photographs and folders, 250 cassettes, 200 sweepstakes forms, and 250 posters to support the planned events. Implementation also called for neon bar signs, as well as Dakota logos on napkins, coasters, stirrers, table tents, ashtrays, and mirrors (Promotional Marketing, Inc. 1989).

The total development costs were considerable. Even six months before the scheduled spring 1990 test marketing and before costs were incurred for ads or promotions, the cost of the project had exceeded $1.4 million (Natalie Perkins, memorandum to Laura Bender, September 20, 1989). In addition, the campaign may have had some public relations costs for the industry. A sizable advocacy campaign was mounted to highlight the targeting and promotion efforts (USDHHS 2000). The effect of the advocacy effort is unclear, but the Dakota brand ultimately had little market impact, and it was withdrawn. The campaign illustrated that psychological subtleties and knowledge of lifestyle patterns were used to define women precisely and that risks from positioning the brand narrowly existed, in that it may have resulted in disinterest among consumers outside this narrow lifestyle segment.

improve life in inner-city communities. They honored five leaders annually and donated $50,000 to each of several nonprofit inner-city services chosen by the honorees (Levin 1988). The company involved the National Urban League, Inc., the National Association for the Advancement of Colored People, and the National Newspaper Publishers Association in the selection process (Lynch and Bonnie 1994).

In addition, the tobacco industry has provided financial support to women's organizations, especially those that promote women's leadership in business and politics (Williams 1991). These groups have included the National Women's Political Caucus, the Women's Campaign Fund, the Women's Research & Education Institute (an affiliate of the Congressional Caucus for Women's Issues), the League of Women Voters Education Fund, Women Executives in State Government, the Center for Women Policy Studies, the Center for the American Woman and Politics, the American Association of University Women, and the American Federation of Business and Professional Women's Clubs (Levin 1988; Williams 1991). In mid-1999, it was reported that Philip Morris, along with a few other large corporations and women's advocacy groups, formed the Safe@Work coalition, a group dedicated to protecting women who were stalked by their abusers in the workplace (Ellin 2000). Likewise, Philip Morris, through Doors of Hope, a partnership it entered into with the National Network to End Domestic Violence Fund, provided over $1 million in grants to 132 organizations around the country who were tackling domestic violence (Adams 1998).

In the past, Philip Morris funded printing of the program for a meeting of the National Organization for Women (Ernster 1985), but the organization later eschewed tobacco company funding (Williams 1991). The Center for American Women and Politics at Rutgers University (New Brunswick, New Jersey) accepted money from Philip Morris and R.J. Reynolds to hold a conference that drew one-half of the nation's female state legislators (Williams 1991). In 1987, the National Women's Political Caucus received $130,000

from R.J. Reynolds and Philip Morris, which accounted for 10 to 15 percent of the group's budget (Levin 1988). Former caucus advisory board member Patricia Schroeder (D-CO, U.S. House of Representatives, 1972–1996) provided positions to persons with fellowships funded by Philip Morris through the Women's Research & Education Institute and, in 1989, presented the Good Guy Award of the National Women's Political Caucus to a vice president of Philip Morris (Williams 1991). Philip Morris also sponsored a national directory of women elected officials (Levin 1988) and funded internships for the Center for Women Policy Studies. A compendium of organizations and events throughout the United States that received tobacco industry support during 1995–1999 lists 10 programs specifically for women and 2 additional sponsorships for addressing domestic violence (Siegel 2000).

Groups representing minority women have been the recipients of tobacco company funding. These groups include the National Coalition of 100 Black Women, the Mexican American National Women's Association, the U.S. Hispanic Women's Chamber of Commerce, the Asian Pacific American Women's Leadership Institute, and the National Association of Negro Business and Professional Women's Clubs (Williams 1991). Philip Morris sponsored leadership training programs in New York for Hispanic women and, in 1987, gave $150,000 to the U.S. Hispanic Chamber of Commerce (Levin 1988). Tobacco companies also supported the National Council of La Raza, the League of United Latin American Citizens, the National Hispanic Scholarship Fund, the National Association of Hispanic Journalists, the United Negro College Fund, the National Urban League, Inc., the National Newspaper Publishers' Association (a black publishers group), and the Black Journalist's Hall of Fame. In addition, they sponsored directories of national black, Hispanic, and Asian organizations (Ernster 1988; Levin 1988; Williams 1991).

In 1987, Philip Morris gave over $2.4 million to more than 180 black, Hispanic, and women's groups, and R.J. Reynolds gave $1.9 million to 49 women's and minority groups (Levin 1988). Such support buys visibility and credibility and may foster neutrality or support of tobacco industry positions (Warner 1986; Ernster 1988; Levin 1988; Williams 1991). As noted earlier, marketing that associates a consumer product with a cause is typically used to buy goodwill as the return on investment (IEG 1995a). The Women's Research & Education Institute fellowship director was quoted as saying, "I simply think it's part of their way to make themselves look better. They know that they're perceived negatively by representatives who are concerned with health issues. To tell you the truth, I'm not that interested. I'm just glad they fund us" (Levin 1988, p. 15). The executive director of the Women's Campaign Fund observed, "They were there for us when nobody else was. They legitimized corporate giving to political women's groups, from my perspective" (Williams 1991, p. A-16). An August 1986 Tobacco Institute memo stated, "We began intensive discussions with representatives of key women's organizations. Most have assured us that, for the time being, smoking is not a priority issue for them" (Levin 1988, p. 17).

Few women's groups that take tobacco money support campaigns against smoking (Williams 1991). In 1991, the Congressional Caucus on Women's Issues introduced the Women's Health Equity Act. Although it was a package of 22 bills including 6 covering disease prevention, none of the proposals addressed smoking (Williams 1991). Moreover, support for minority causes appears to have borne fruit for tobacco interests. *The National Black Monitor*, which is inserted monthly into 80 newspapers targeted to blacks, ran a three-part series on the tobacco industry. In one of the articles, blacks were called on to "oppose any proposed legislation that often serves as a vehicle for intensified discrimination against this industry which has befriended us, often far more than any other, in our hour of greatest need" (Levin 1988, p. 17). The February installment, ghostwritten by R.J. Reynolds, argued that "relentless discrimination still rages unabashedly on a cross-country scope against another group of targets—the tobacco industry and 50 million private citizens who smoke" (Levin 1988, p. 17).

Auto racing is another popular venue used by tobacco companies to market their products. Race car events are associated with courage, independence, adventure, and aggressiveness (Pollay and Lavack 1993). Although the stereotype is that men, not women, follow auto racing, the sport is of keen interest to many women, especially in the southeastern United States. Tobacco company sponsorship of motor racing events includes the NASCAR Winston Cup stock car race series, the Marlboro Grand Prix, the IndyCar World Series sponsored by Marlboro, and drag racing sponsored by Winston. Individual cars and drivers are also sponsored. A benefit of sponsorship is exposure of the brand and logo of cigarettes on television. In 1992, more than 350 motor sports broadcasts reached more than 915 million people (Slade 1995). On these broadcasts, tobacco brands received about

54 hours of television exposure and were mentioned more than 10,000 times—exposure with a value of approximately $41 million for Winston, $12 million for Marlboro, and $4 million for Camel.

Provisions of the Master Settlement Agreement

In the historic agreement known as the Master Settlement Agreement (MSA), executed November 23, 1998, 11 tobacco companies agreed to pay $246 million to 46 states over 25 years. The MSA contained numerous provisions important to public health, among them an array of marketing and advertising restrictions (Wilson 1999).

Restrictions on Brand Name Sponsorships

- Prohibits brand name sponsorship of concerts, events with a significant youth audience, and team sports (football, basketball, baseball, hockey, or soccer).
- Prohibits sponsorship of events where the paid participants or contestants are underage.
- Limits tobacco companies to one brand name sponsorship per year, after current contracts (in effect as of August 1, 1998) expire or after three years, whichever comes first.
- Provides a special exception to the prohibition of the sponsorship of concerts for the Brown & Williamson company by permitting it to sponsor either the GPC country music festival or the Kool jazz festival (formerly both were annual events). The agreement also permits the company to sponsor one other brand name event that was part of a contract in existence before August 1, 1998, for a period not to exceed three years.
- Allows corporate sponsorship of athletic, musical, cultural, artistic, or social events as long as the corporate name does not include the brand name of a domestic tobacco product.
- Bans the use of tobacco brand names in stadiums and arenas.
- Limits the duration and restricts the placement of advertising for sponsored events.

General Advertising and Marketing Restrictions

- Bans use of cartoon characters, but not human subjects (e.g., the Marlboro Man), in the advertising, promotion, packaging, or labeling of tobacco products, effective May 22, 1999.
- Bans payments to promote tobacco products in movies, television shows, theater productions or live performances, videos, and video games.
- Bans distribution and sale of nontobacco merchandise with brand name logos (e.g., caps, T-shirts, backpacks), effective July 1, 1999.
- Prohibits tobacco companies from authorizing third parties to use or advertise brand names.
- Requires tobacco companies to designate a contact in each state that will respond to Attorney General complaints of prohibited third-party activity.
- Exempts licensing agreements or contracts in existence as of July 1, 1998, but does not permit the licensing agreements or contracts to be extended.
- Bans future cigarette brands from being named after recognized nontobacco brand or trade names (e.g., Harley-Davidson, Yves Saint Laurent, Cartier) or nationally recognized sports teams, entertainment groups, or individual celebrities.

Restrictions on Outdoor Advertising

- Bans all transit and outdoor advertising (including billboards, signs, and placards larger than a poster) in arenas, stadiums, shopping malls, and video game arcades. Poster-sized signs and placards can be placed in arenas, stadiums, shopping malls, and video game arcades, but must conform to the overall agreement regarding the targeting of advertising to children.
- Requires tobacco billboards and transit ads to be removed by April 22, 1999.
- Allows states to substitute, at industry expense and for the duration of billboard lease periods, alternative advertising that discourages smoking among youth.
- Bans tobacco companies from entering into agreements that would prohibit advertising discouraging tobacco use.

These provisions of the MSA primarily addressed tobacco marketing to youth and have yet to be evaluated as to how they affect tobacco companies' patterns of marketing to women. The first study attempting to document the effect of the MSA

marketing and advertising restrictions found that tobacco companies were shifting advertising dollars into point-of-sale promotions and advertising instead of billboards (University of Illinois at Chicago 2000).

Marketing on the Internet

The future of tobacco advertising and promotion may lie in cyberspace. The World Wide Web on the Internet offers endless possibilities for promoting tobacco use and marketing tobacco products. For users of the Web, hundreds of smoking-related Web sites can be found. (No Web sites are listed here because addresses change so frequently.) These include sites selling smoking clothing and novelty items, such as *Smoke* magazine, and sites providing photographs of women smoking, some of which are pornographic. The Web also offers lists of and information about female celebrities who smoke, as well as photographs of celebrities smoking. Smoking chat rooms and even an interactive novel, *Jack Tar*, which features background photographs of women smoking, are available. There is a smokers' resource site, and many sites are supported by purveyors of cigarettes, cigars, and smokeless tobacco. Using the keywords "smoke," "smoking," "tobacco," and other related terms in any Web site browser will yield many Web site hits.

Marketing of Smokeless Tobacco and Cigars

As described in "Other Tobacco Use" in Chapter 2, the prevalence of smokeless tobacco use remains low among women and girls in the United States, and advertising of smokeless tobacco products does not appear to be targeted to women.

However, the marketing of cigars to women is an innovation in tobacco advertising, and aggressive marketing to women can be expected to increase women's market share in the future. The Consolidated Cigar Corporation (manufacturers of Muriel, Dutch Masters, El Producto, and Backwoods) has developed new types of cigars for the women's market (Shanken 1996). A spokesperson for Davidoff of Geneva, a cigar store on Madison Avenue in New York City, said in 1995 that its share of women buyers had recently doubled to six percent (Besonen 1995).

Cigars are frequently promoted to women through advertising and special events, such as a $95 per seat dinner held in New York City that featured gourmet foods, champagne, wine, and cigars. The invitation read "An evening dedicated to the women of the 90's!" (Besonen 1995, p. 40). These food, wine, and cigar events—labeled by the industry as "smokers"—have been held throughout the country. Magazines such as *Cigar Aficionado* have prominently displayed photographs of women smoking cigars at these events. Of seven cigar smokers photographed at a March 1995 smoker held at the Walt Disney World Swan Hotel in Orlando, Florida, four were women. The same issue showed two women smoking cigars at a New Orleans (Louisiana) women's smoker held in April 1995, and a New Jersey bride, still in her gown and veil, was shown puffing on a stogie. Women and men could be seen smoking cigars at the April 1995 international cigar celebrations held in 31 Ritz-Carlton hotels around the world, which were sponsored by the General Cigar Company, Inc. and *Cigar Aficionado.* At the Los Angeles movie premiere of *Lord of Illusions,* Dutch actress Famke Janssen, who also costarred in the James Bond movie *Goldeneye,* smoked a cigar beside director Clive Barker (*People* 1995c). An ad in the autumn issue of *Cigar Aficionado* promoted Big Smoke evenings to be held at upscale hotels in San Francisco and Los Angeles, California; New York City; Miami, Florida; Boston, Massachusetts; Chicago, Illinois; and Dallas, Texas (*Cigar Aficionado* 1995b). These events featured handmade cigars from around the world, "the best" spirits and wines, and food from leading "cigar-friendly" restaurants; the cost was $150 per ticket.

Some ads for cigars (e.g., El Sublimado, C.A.O. Premium Cigars, and Don Diego) have featured women smoking them (*Cigar Aficionado* 1995c,d,e). One Don Diego ad showed a glamorous woman puffing a stogie and the phrase "Agnes, have you seen my Don Diegos?" Women smoking cigars have also been featured in ads for establishments such as Bally's Casino in Las Vegas, Nevada, and the Trump Plaza in Atlantic City, New Jersey (*Cigar Aficionado* 1995a,f), and for nontobacco products such as Buffalo jeans (*Vogue* 1995a).

Cigar Aficionado runs features on women celebrities, such as Whoopi Goldberg, who smoke cigars. The cover of the autumn 1995 issue showed supermodel Linda Evangelista, dressed in ivory satin, ostrich feathers, and diamonds, holding a cigar. The accompanying eight-page article touted her two-year history of cigar smoking and her favorite cigar. A full-page photograph showed her exhaling cigar smoke, another page reprinted her fashion magazine covers, and another showed her in various poses holding a cigar and wearing only a man's shirt and tie (Rothstein 1995). To promote the issue, *Cigar Aficionado* ran full-page newspaper ads of the cover photograph

with copy reading, "Light up with Linda!" (*New York Times* 1995).

Widespread marketing of cigars on the Internet has featured young women modeling cigar-themed sportswear and content likely to appeal to youth of both sexes (Malone and Bero 2000). A Web site devoted to women and cigar smoking also exists (CigarWoman.com 2000). As of July 2000, the Web site defined its focus as follows: "A woman's online source to finding out the best information about cigars, accessories and more. Whoever said it was a man's tradition to enjoy a good stogie? We are working very hard to bring women cigar smokers a place they can feel comfortable and secure about smoking cigars" (CigarWoman.com 2000).

Marketing of cigars also occurs in more subtle ways through product placement in films. A recent study (Goldstein et al. 1999) found that 56 percent of 50 G-rated children's movies reviewed included tobacco use episodes and that of these, cigars were the preferred tobacco for more characters (59 percent) than were cigarettes (21 percent).

According to an FTC report (1999), unit sales of cigars increased by 15 percent between 1996 and 1997, from 3.8 billion to 4.4 billion cigars. During this period, the number of brands marketed increased by 54 percent, from 207 in 1996 to 319 in 1997. Likewise, the variety of cigars available to consumers increased from 1,437 in 1996 to 2,025 in 1997. Concomitant with this increase in sales and varieties of cigars, cigar advertising and promotion increased by 32 percent, from $30.9 million in 1996 to $41 million in 1997. In 1997, the largest proportion of advertising and promotional expenditures was allocated to promotional allowances (39.8 percent), magazines (24.1 percent), and point of sale (13 percent). Internet advertising, while small in actual dollars, rose 180 percent, from $78,000 in 1996 to over $218,000 in 1997. Among women college students, a 1999 survey found that 25 percent reported any lifetime use of cigars and 13.6 percent reported cigar use within the past year (Rigotti et al. 2000).

Press Self-Censorship in Relation to Cigarette Advertising

Magazines that accept cigarette ads have been reported to be less likely to publish stories on the health effects of tobacco use than are those that do not accept such ads (Smith 1978; Whelan et al. 1981; Ernster 1985; Warner 1985; Weis and Burke 1986; White and Whelan 1986; Kessler 1989; Warner and Goldenhar 1989; Warner et al. 1992b). This finding raised the question of whether dependence on revenues derived from tobacco advertising influences the type and content of articles published. If media coverage of smoking and health in popular magazines is influenced by tobacco companies or their advertising agencies, then media self-censorship must be considered a factor contributing to the lack of public understanding of smoking as a health risk.

In a content analysis of 12 popular women's magazines (*Good Housekeeping, Seventeen, McCall's, Vogue, Harper's Bazaar, Cosmopolitan, Mademoiselle, Redbook, Family Circle, Ms., Ladies' Home Journal,* and *Woman's Day*) from 1967 through 1979, Whelan and colleagues (1981) found only 24 articles about smoking. Several of these articles discussed the unpleasantness of attempting to stop smoking. Eleven of the articles appeared in *Good Housekeeping,* which does not accept tobacco ads. In stark contrast, during the same period, these same 12 magazines contained 54 stories on stress, 103 on nutrition, 121 on contraceptives, and 258 on mental health. Some omissions were glaring. For example, in one article entitled "The ABC's of Preventive Medicine," many health topics were discussed without a single mention of smoking or tobacco (Whelan et al. 1981).

One investigator examined tobacco advertising and the editorial policies of three women's magazines (*Ms., Good Housekeeping,* and *Seventeen*) published in 1972–1979 (Hesterman 1987). The analysis showed that *Good Housekeeping,* which did not accept tobacco advertising, ran an average of 2.1 stories on smoking and health and 11.2 articles on all health topics each year. *Seventeen,* which also did not accept tobacco advertising, ran a smoking and health story only once every two years and 2.2 health articles each year. *Ms.,* which did accept tobacco advertising, ran 5.7 health stories every year, but none addressed the health risks from smoking. On the bases of the findings, extensive interviews with editorial staff of the three magazines, and a review of the literature, the investigator concluded that editorial autonomy on issues related to the health effects of smoking was compromised when a magazine accepted tobacco advertising.

In 1986, another content analysis of 19 popular magazines was published (White and Whelan 1986); 14 of the 19 were women's magazines. The report rated *Reader's Digest* as having the best coverage of the risks from smoking, and *Prevention, The Saturday Evening Post, Good Housekeeping,* and *Vogue,* in that order, were rated as having excellent coverage. Except for *Vogue,* magazines with the best coverage did not

accept cigarette advertising. The researchers found that when *The Saturday Evening Post* stopped accepting tobacco ads in 1983, the magazine's coverage of smoking and health increased substantially. Of the 19 magazines, 12 were rated as having poor coverage of smoking and health; for 1 magazine (*McCall's*) the rating was "coverage may be improving." In 1986, *Cosmopolitan* printed one of the only articles it ever published on smoking, and it addressed the reduced risk for endometrial cancer among heavy smokers. The researchers in this study of 19 magazines concluded that magazines that accepted cigarette ads were less likely to publish articles about the health risks from smoking than were those that did not accept such ads.

Other researchers examined the cigarette and alcohol ads in *Ms.* magazine's annual "Beauty of Health" issues published in 1983–1986 (Minkler et al. 1987). The issues of "Beauty of Health" published over the four years contained an average of 5.4 tobacco ads, and cigarette companies often purchased the back outside cover of the magazine, which costs about one-third more than a full page in other parts of the magazine. The primary themes of the ads were related to the product (e.g., taste, tradition, or history), social status (e.g., wealth, prestige, and success), and health (e.g., fitness and exercise). The researchers also examined the titles of articles published in *Ms.* in 1972–1986; none of the 188 articles on health-related topics mentioned tobacco or smoking.

During a press luncheon in the Soviet Union in the late 1980s, Gloria Steinem, founding editor of *Ms.* magazine, was asked by a Soviet official how to subtly influence press coverage of Glasnost. She replied, "Advertising" (Steinem 1990, p. 18). Questioned later by a journalist disturbed by her response, which implied that freedom of the press could be compromised, she noted that the media influences what consumers read through "soft" stories, "advertorials," and self-censorship of topics that concern the largest advertisers. With respect to women's magazines, Steinem said, "There, it isn't just a little content that's devoted to attracting ads, it's almost all of it" (Steinem 1990, p. 18). Since 1990, *Ms.* magazine has not accepted advertising of any sort and has been fully supported by readers.

One investigator studied the types of issues addressed in 1983–1987 in five popular women's magazines that carried cigarette advertising (*Cosmopolitan, Mademoiselle, McCall's, Ms.,* and *Woman's Day*) and one that did not accept cigarette advertising (*Good Housekeeping*) (Kessler 1989). The study showed that women's health was a major topic in all these magazines; 694 editorial references were made to health in the 375 issues of magazines examined. In the five magazines that accepted tobacco advertising, cigarette ads constituted from 8.0 to 17.1 percent of all advertising pages but occupied between 18.3 percent and 85.0 percent of all of premium pages (front and back covers). During this five-year period, none of the magazines covered the health risks from smoking in a full-length feature, column, review, or editorial. When smoking was discussed, it was usually in a 50- to 100-word newsbrief or in statements of one or two sentences, including three mentions of the positive effects of smoking. Only eight newsbriefs in the six magazines over the five-year period focused on smoking-related health risks, and none of these mentioned lung cancer, heart disease, or pregnancy. During the same period, more than 1,300 articles on the health risks from smoking were published in the scientific literature. Furthermore, the references to smoking that did appear in the women's magazines were often very misleading, incomplete, or inaccurate. For example, a *Woman's Day* article on protecting children's health listed "not smoking" as number 14 in a list of 15 recommendations, and the only risk from smoking mentioned was house fires. Smoking during pregnancy or around children was not discussed. A *McCall's* article mentioned the risk from smoking during pregnancy but recommended only that women consider stopping one week before the due date. When news briefs and other stories were taken into account, *Good Housekeeping* accounted for one-third of a total of 40 references to cigarettes in the magazines and was the only magazine to mention the link to lung cancer, but it too gave minimal attention to the health hazards of smoking. Kessler (1989) suggested that magazine editors and publishers may fear that editorial matter offensive to tobacco producers might result in loss of advertising from the nontobacco subsidiaries of parent tobacco companies.

In a large-scale, longitudinal study, Warner and colleagues analyzed the content of 99 popular U.S. magazines published during 1959–1969 and 1973–1986 to determine the probability of publication of articles on the risks from smoking as a function of revenue derived from cigarette advertising (Warner and Goldenhar 1989; Warner et al. 1992a). The probability of publishing an article on the risks from smoking was 11.9 percent among all magazines that did not carry cigarette advertising and 8.3 percent among those that did advertise cigarettes. Among women's magazines, the probabilities were 11.7 and 5.0

percent, respectively. Among women's magazines, each 1-percent increase in revenues derived from cigarette advertising resulted in a 1.9-percent decrease in the probability that the risk from smoking would be covered in magazine stories. The decrease found among women's magazines was three times that among all other magazines (Warner et al. 1992b). A similar study examined 13 magazines for 1997 and 1998 and found that women's magazines continue to downplay the hazards of cigarette smoking. During this period, only 1 of 519 health-related articles featured smoking. Articles about smoking-related diseases "de-emphasized or neglected" the role played by smoking (Lukachko and Whelan 1999, p. 6). In some cases, the magazines gave "inappropriate or unscientific recommendations" about tobacco (Lukachko and Whelan 1999, p. 6). These magazines carried slightly more than three ads on average per issue studied (Lukachko and Whelan 1999). An examination of the content of magazines targeting African American women found far more advertising than health information. *Jet*, *Ebony*, and *Essence* were studied from 1987 through 1994; 1,477 tobacco ads and only six articles on lung cancer were found (Hoffman-Goetz et al. 1997).

International Marketing of Cigarettes to Women

Tobacco companies have been active in foreign countries, building overseas manufacturing facilities and purchasing local tobacco companies. The companies have entered into joint ventures, provided technical assistance and funding for foreign tobacco growers (e.g., in Africa, Asia, and South America), established public relations tobacco institutes in many countries, and entered into comprehensive bilateral agreements with national monopolies (e.g., in China) (Williams 1995a,b,c,d; Weldner 1996).

After the U.S. government applied pressure to open markets to trade, the market share of U.S. cigarettes in Asian countries such as Japan, Taiwan, South Korea, and Thailand, increased dramatically (Chaloupka 1996). This increase was associated with a sixfold increase from 1978 through 1994 in the number of cigarettes smoked by persons younger than age 20 years (*Japan Times* 1995). The prevalence of smoking also increased among students in Korea (Suh et al. 1997), and in Taiwan, experimental smoking by adolescents aged 15 through 17 years rose from 3.3 percent in 1985 to 20.5 percent in 1991 (John Tung Foundation 1994). The rise of smoking among women and children in Asia has coincided with aggressive Western-style advertising (Lam and Mackay 1995). Although firm evidence to support direct associations has been lacking, this preliminary evidence suggested a pattern of association similar to that seen in the United States and emphasizes the enormous potential of marketing to change social norms.

Around the world, transnational tobacco companies continue to deny evidence of the link between smoking and ill health. They have attempted to obstruct public health action on tobacco, influence trade agreements, verbally attack organizations and persons working on tobacco issues, and produce spurious arguments about freedom of choice and economic advantage. Governments in many developing countries are unfamiliar with these tactics and, in many cases, have not been able to counter them effectively (Mackay and Crofton 1996).

Historical Overview

It was not until about 1930 that ads targeting women were first published in Europe. Although women had appeared in British ads earlier, they were purely decorative, the aim being to attract the attention of male smokers. Only in the late 1920s and early 1930s, following changing social attitudes, was it acceptable for women to be seen smoking in public.

During the 1940s and 1950s, the images and messages used in ads aimed at women expanded. Smoking was promoted as enhancing relaxation. One example is a 1947 ad that read "Afternoon off. Is anything more pleasant or soothing than pottering in the garden on a fine afternoon?… And nothing completes your peace of mind more than an 'Embassy'" (*Woman's Own* 1947). Similarly, a Craven 'A' advertisement of 1951 stated that "One can let the world go by, as Craven 'A' smokers do" (*Sphere* 1951). Other themes reflected a woman's "flair for quality" (e.g., a Gold Flake ad in 1950) (*Woman's Own* 1950), her intelligence (e.g., in ads in *Minor* in 1952 and 1953; *Picture Post* 1952, 1953b), or the sporty life (e.g., a Kensitas ad in 1953) (*Illustrated* 1952) and outdoor pursuits (e.g., in ads for Players Navy Cut in 1953 and 1956) (*Woman and Home* 1953; *Picture Post* 1956). Cigarettes were also portrayed as a passport to sexual attractiveness and success. The copy for a 1952 Craven 'A' ad read "When two young people share the same taste, their hearts are one" (*Woman* 1952), and an advertisement for the same brand in 1953 stated that "When two's company and three is infinitely too many, the pleasure of Craven 'A' completes the perfect understanding between young people together" (*Picture Post* 1953a). Similar ads also started to appear in other

European countries, later than in the United Kingdom, reflecting a slower change in social and cultural attitudes toward women in these countries. For example, tobacco companies in Sweden did not start to advertise directly to women until the 1950s, when smoking was portrayed as glamorous and as a way for women to gain admission to the world of men. During the 1960s, ads in Sweden promoted smoking as a symbol of female liberation and equality (Haglund 1988).

The targeting of women in many Western countries entered a new phase in the 1970s and 1980s, after the 1968 launch of Virginia Slims in the United States. The number of women in the labor force had increased, a key factor in the decision of tobacco companies to develop a range of marketing strategies to appeal to women. The strategies included altering the product and its price, availability, and image through innovative packaging and promotion (Ernster 1986).

In the 1980s, concern over the large number of men who had stopped smoking may have played a part in prompting the tobacco industry to increase its emphasis on women. This phenomenon was reflected in the British trade journal *Tobacco*, which carried articles with such titles as "Suggesting that Retailers Should 'Look to the Ladies'" (Reisman 1983), "Women—A Separate Market" (Cole 1988b), and "Creating a Female Taste" (Gill and Garrett 1989).

Until the 1980s, little tobacco marketing took place in developing countries. National tobacco monopolies in these countries generally either did not promote their products or did so only minimally. Beginning in the 1980s, however, when young women in some countries were becoming more economically independent and began to copy Western fashion and trends, transnational tobacco companies introduced tobacco ads into developing countries. Many of the initial ads had a masculine focus (e.g., the Marlboro man), but gradually a range of ads was produced, including gender-neutral ads (e.g., a pleasant mountain scene or a blue lagoon), ads that showed both women and men (e.g., enjoying the outdoors in a group), and ads in which only women were shown (e.g., ads for Virginia Slims). Designer cigarettes then appeared. In 1989, the brand Yves Saint Laurent, its elegant package designed to appeal to women, was launched in Malaysia and other Asian countries. Some of the national tobacco monopolies and companies, such as those in Indonesia and Japan, began to copy this promotional targeting of women (Mackay and Crofton 1996).

The precise amount of money spent on advertising, sponsorship, and other promotion throughout the world is not known, but the fragmented information available suggested that the amount is considerable. In the mid-1980s, the combined annual tobacco advertising expenditures for 10 Latin American countries totaled $116.7 million (USDHHS 1992).

Advertising Age reported data for 1989 on advertising in 38 countries, based on media totals provided by research companies, media tracking services, marketing publications, and advertising agencies in each country. The reliability of available data varied by country, but Philip Morris ranked 1st in advertising in Argentina, Hong Kong (China), and Pan-Arabia (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates). It ranked 5th in Germany and the United Kingdom, 7th in Canada, and 10th in Mexico (*Advertising Age* 1990). Since that time, enormous increases in marketing expenditures by U.S. tobacco companies have occurred in China, the countries of Eastern Europe, and other developing countries (Amos 1992; Hille 1995).

In 1994, Marlboro was the biggest advertiser among cigarette brands in China (US$5.2 million), followed by State Express 555 (US$3.1 million) (Hille 1995). Expenditures were expected to continue to grow, and media directors predicted that any restrictions or bans on tobacco advertising in the electronic and print media would be unlikely to affect tobacco companies' expenditures because the companies could use other forms of advertising to which restrictions did not apply (Hille 1995).

Marketing Strategies

The ways in which tobacco companies target women vary across countries. Factors that influence marketing strategies include (1) the current prevalence of smoking among women, (2) restrictions on tobacco marketing, which vary from no restrictions to complete bans, (3) cultural norms, and (4) women's access to different media. However, strategies generally mirror those used in the United Kingdom and the United States, which is not surprising, because British and U.S. companies are the main exporters of cigarettes and have become increasingly involved in new markets (Chapman and Wong 1990; Kholmogorova and Prokhorov 1994). When doing business abroad, tobacco companies often apply business standards different from and less stringent than those they use in their own country. Ads that are either not allowed or would be ethically or culturally unacceptable in the United States (e.g., religious images of the Madonna) are used in other countries (Chapman and Stanton 1994), and many countries do not require health warnings in ads.

Types of Media

Worldwide, all media are used for tobacco advertising—television, film, video, radio, print, billboard, Internet direct mailing, public transportation vehicles and facilities, bus stops, and point-of-sale displays. In countries that ban direct advertising, tobacco companies turn to indirect advertising and sponsorship (Naett and Pollitzer 1991b). The global expansion of mass media continues to provide new opportunities for advertisers. The development of satellite television means that even the most remote villages in developing countries can be reached by advertisers, and no international laws govern tobacco advertising on satellite broadcasts. Since the fall of communism, tobacco advertising has increased dramatically in both print and television in Central and Eastern Europe.

One of the most popular media for reaching women throughout the world, particularly where tobacco advertising is banned on television, is women's magazines (Amos and Bostock 1992a). In a study of the top-selling women's magazines in 13 European countries, more than two-thirds were found to accept cigarette ads (Amos and Bostock 1992b). A more recent study of the most popular women's magazines in 17 countries in Europe also found that the majority of these magazines accepted cigarette ads (Amos et al. 1998). Many of these ads appeared to be designed to appeal to women, particularly in countries that had few restrictions on tobacco advertising (e.g., the Netherlands and Germany). Women's magazines are regularly read by about one-half of all women in the United Kingdom (Amos et al. 1991) and more than 50 million women in the European Union (Amos and Bostock 1992a). Furthermore, these magazines are read by women of all ages and backgrounds. By careful selection, advertisers can target specific groups, such as young women, and trendsetters. Women's magazines have been launched in several Central and Eastern European countries, and some of the most successful publications (*Elle*, *Cosmopolitan*, and *Marie Claire*) are now published in several countries and sold throughout the world. Magazines can lend a presumed social acceptability or stylish image to smoking. The health editor of *British Vogue* stated that publication of an ad in the magazine was "as good as a stamp of acceptability" (Jacobson and Amos 1985, p. 13). This de facto approval may be particularly important in countries where smoking prevalence is low among women and where tobacco companies are attempting to associate smoking with Western values.

Direct Advertising

As in the United States, tobacco advertising in other countries portrays a variety of attractive images and themes that have been used to promote the social acceptability of smoking among women and to highlight attributes of particular brands. Smoking has been promoted as being glamorous, sophisticated, fun, romantic, sexually attractive, healthy, sporty, sociable, relaxing, calming, emancipating, feminine, and rebellious and as an aid to weight loss.

Depending on restrictions on cigarette advertising, these images and themes have been conveyed in different ways. In countries with few or unenforced restrictions, verbal and visual images are explicit. One ad featured an attractive young woman alone who was relaxing in a bath (Philip Morris). Another ad showed a sexually alluring young woman, with copy reading "La seduction pure et dure (Gitanes Blondes)." In countries where such explicit images are prohibited, subtle images are used. For example, luxury is represented by silk or satin and by symbols of success or style. Ads of this kind include photographs of designer clothes and expensive and exotic locations (European Bureau for Action on Smoking Prevention 1989; Karaoglou and Naett 1991; Naett and Pollitzer 1991a).

One of the most common themes for ads in developed countries is increasingly used in developing countries—that smoking is both a passport to and a symbol of a woman's emancipation, independence, and success. For example, Virginia Slims ads have urged women in Japan to "Be you" and have told Hong Kong women, "You're on your way." Capri ads have encouraged women to have their own opinions, as when a young woman is shown with the caption "It's so me." Gauloises Blondes cigarettes have been promoted as reflecting "L'esprit libre" (Free spirit) in the Netherlands and "Liberte, toujours" (Freedom, always) in Germany and South Africa. In Japan, Capri ads have featured European role models, such as a dress designer saying, "The dress I design represents my own way of life." Ads for Virginia Slims have shown a pair of white female and male rugby players with the tag line "The locker rooms are separate but the playground and the goal are common" (Chapman 1986). Chapman (1986) suggested that ads like these that show Western images of liberated women also represent a form of cultural imperialism by the tobacco companies.

In South Africa, where smoking by women of childbearing age has been socially taboo among blacks, ads for Benson & Hedges have begun to feature

young black women. In one ad, a young woman wearing aerobics gear is smoking a cigarette with a young black man. In another ad, a black woman wearing traditional headgear is seated beside a black man and is shown accepting a cigarette from a white man. The copy, "Share the feeling, share the taste," echoes the African cultural value of "ubuntu" (communalism), by which people share whatever they have (Val Hooper, Graduate School of Business, University of Cape Town, fax to Amanda Amos, October 4, 1995).

An editorial in the June 1990 *Tobacco Reporter* noted the growth opportunities for sales to women in Asia. It suggested that as women become more independent, cigarette use may symbolize their newly acquired freedom (Zimmerman 1990). In responding to criticism of his company's targeting of women, a regional manager of corporate affairs for Philip Morris Asia, Inc., said that the company was only responding to an existing market: "You can't create markets. You can only create a product for which there is a demand" (Anderson 1993, p. 6).

Products and Packaging Focused on Women

Tobacco companies have produced many brands specifically for women, including Kim, Virginia Slims, Capri, Vogue, MS, and More. Although sales of these brands currently tend to be relatively low outside the United States, the advertising explicitly promotes smoking as a desirable and acceptable female habit, often in countries where the prevalence of smoking among women is very low. For example, in Hong Kong, where fewer than 2 percent of women younger than age 40 years smoked, Virginia Slims was launched in an apparent attempt to create a new female market (Anderson 1993).

Many companies have also developed long, extra-slim, and low-tar versions of popular brands of cigarettes in an attempt to appeal to women. Slender female models are often depicted smoking these "feminized" cigarettes, and the copy tends to emphasize words such as mild, light, slim, slender, and long. While supposedly describing the merits of the cigarettes, these copy lines associate the product with two key female aspirations—being slim and being attractive. In Europe, the journal *Tobacco* described the brand Vogue as a "stylish type of cigarette with obvious feminine appeal, being slim and therefore highly distinctive" (Cole 1988a, p. 15). Vogue has been advertised in South Africa with themes that associate Vogue with European style (Cole 1988a). One study, designed to identify factors related to the high prevalence of smoking among a sample of women airline employees of Asian origin, showed no significant difference in health knowledge between smokers and nonsmokers (Li et al. 1994). However, a greater percentage of smokers than nonsmokers believed that smoking would help control weight and tended to perceive women depicted in cigarette ads as attractive, elegant, fit, sociable, and adventurous.

Using strategies similar to the extensive promotions in the United States, companies in other countries have produced special gift packs and offers designed to appeal to women. In Taiwan, a luxurious Yves Saint Laurent gift pack that contained two cartons of cigarettes and one crystal item was launched to coincide with the Lunar New Year. In Hungary, the L&M brand of cigarettes has offered free holidays in the United States along the legendary Route 66 (Kiskegyed 1996, *Tina* 1996). In Germany, readers of women's magazines have been encouraged to send for free "test-set" packs of the low-tar brand Reemtsma R1 Minima (*Brigitte* 1998). In Japan, purchasers of Mila Schön cigarettes had the chance to win handbags and ladies' watches (*Asahi Shimbun Weekly Aera* 1995).

Brand Stretching

The use of brand or company names on nontobacco goods and services is now widespread in both developed and developing countries. Widely advertised travel agencies operating in Europe and Asia, as well as holiday travel packages, are named after tobacco brands such as Peter Stuyvesant, Camel, and Silk Cut. Holidays sponsored by Kent have been advertised on satellite transmissions. In 1995, 25 Marlboro Classics shops were located throughout the world, including China, Indonesia, Japan, Korea, the Philippines, Taiwan, and Thailand. The Fortuna brand name has appeared in ads for Spanish sportswear featuring tennis star Steffi Graf (Amos 1997).

Sponsorship

Throughout the world, tobacco companies sponsor sports events, the arts, pop and rock concerts, university departments, and even health organizations, again paralleling the use of sponsorship in the United States. Sports sponsorship is generally limited to exciting, popular national sports that are televised. Sponsorship can gain positive publicity for tobacco companies by linking them with internationally known women and female role models. For example, in 1995, Great Britain's late Princess Diana, who was

known to be opposed to tobacco use, attended the Salem Open Tennis Tournament in Hong Kong and accepted a check from the sponsor, R.J. Reynolds, to benefit the Hong Kong Red Cross (Harper 1995).

Sports figures are also used in ads. In 1995, the makers of Benson & Hedges cigarettes ran whole-page ads featuring female climber Lum Yuet Mei in newspapers in Malaysia, where direct advertising is banned. She was suspended from a rock face and was quoted as saying, "Tonight cling on to me as I attempt to conquer the amazing Dolomite cliffs." The name Benson & Hedges was at the top of the page, and the brand's golden colors were featured in the ad, which was entitled "She took the challenge and realized her golden dream" (*New Straits Times* 1995, p. 5).

Tobacco sponsorship of the arts in Asia has included sponsorship for British entertainer Peter Ustinov (Hong Kong in 1992), Tony Bennett jazz concerts (Thailand in 1993), the Central Ballet of China (1994), Andrew Lloyd Webber's *The Phantom of the Opera* (Hong Kong in 1995), and ASEAN Arts Awards (Asia in 1994). The Benson & Hedges Fashion Design Awards are presented in New Zealand, and tobacco companies have donated sculptures to the National Congress building and provided scholarships for musical prodigies in Chile (Perl 1994).

Events and activities popular among young people are also sponsored by tobacco companies. Free tickets to films and to pop and rock concerts have been given in exchange for empty cigarette packets in Hong Kong and Taiwan. *The Marlboro Music Hour*, a program of American pop music, has been broadcast daily throughout China. The combination of Western pop music and bilingual presentation makes the program extremely popular among China's young people. U.S. singers, such as Paula Abdul (*Tin Tin Daily News* 1992) and Madonna (*South China Morning Post* 1990), who do not promote tobacco in the United States, have allowed their names to be associated with cigarettes in other countries. R.J. Reynolds has sponsored free music shows promoting Salem cigarettes at the Hong Kong Coliseum, and Philip Morris has offered discount coupons for music videodisks with purchase of its Special Lights brand. Both companies state that their promotions are targeted to smokers older than 18 years (*Hong Kong Economic Journal* 1990). Some of the Asian tobacco monopolies and companies, especially Japan Tobacco International, have copied this sponsorship through music festivals, such as Mild Seven, featuring Roberta Flack. Tobacco manufacturing machines and posters to "the future customers" were displayed at a promotional event by Japan Tobacco International, in which 5,000 toys were distributed and a doll show of television characters was featured (Asahi News Service 1993). In Sri Lanka, girls have been targeted at discotheques sponsored by Benson & Hedges, where Golden Girls offer them free cigarettes and ask them to light up while at the discotheque (Seimon and Mehl 1998).

In 1989, Philip Morris contributed US$50,000 toward training physicians to work with disabled persons in China (*World Tobacco* 1989). The tobacco companies have sponsored events for Asian journalists, including a conference on environmental tobacco smoke in Bali (1992) and free visits to the United States from Thailand (1993) and Hong Kong (1995).

The tobacco companies have also exported "anti-smoking" materials. For example, R.J. Reynolds has introduced a teaching kit into Hong Kong schools (R.J. Reynolds Tobacco Company 1993). This bright, colorful, trendy kit suggests to children that smoking is an adult habit, but the message may have the reverse effect. The kit does not seriously discuss the health effects of smoking or the addictive nature of tobacco, nor does it encourage parents and teachers to set an example by attempting to stop smoking. Indeed, the materials tell smokers that if they are like most other smokers, they smoke for enjoyment. Nonetheless, by distributing the kit, the tobacco industry may claim to be behaving responsibly, and governments may be given the impression that regulations to protect young people from smoking are unnecessary. In Chile, tobacco companies have demonstrated an interest in children by paying for television sets for rural schools (Perl 1994).

Product Placement

Product placement is typified by the paid insertion of brand name products in U.S. films, which are shown throughout the world. For example, Philip Morris paid $42,500 to have Lois Lane smoke Marlboro cigarettes in *Superman II* (*Berkeley Wellness Letter* 1990), and Liggett paid $30,000 to show Eve cigarettes in *Supergirl* (*Tobacco and Youth Reporter* 1989; *Berkeley Wellness Letter* 1990). In *Working Girl*, secretary Melanie Griffith conspicuously carried a carton of Lark cigarettes for boss Sigourney Weaver (*Tobacco and Youth Reporter* 1989). Product placement has also been documented in films produced in developing regions (Dykes 1989). This technique circumvents bans on direct advertising and is difficult to document and regulate.

Promotion of Tobacco Industry

Several companies use the media overseas to enhance the tobacco industry's image and to defend smokers and smoking, again paralleling U.S. practices. This type of promotion presents tobacco companies as good corporate citizens, thus potentially creating public support and reducing opposition to industry policy positions (Stubenvoll 1990). Newspaper ads in other countries have highlighted the export achievements of specific companies, challenged proposed bans on tobacco advertising and sponsorship, raised questions about the scientific evidence of the effects of passive smoking, and attempted to shift public attitudes toward opposition of tobacco control measures (Chapman 1992). Even though these ads are directed at both women and men, some have highlighted women's issues. For example, in Portugal, where tobacco advertising is banned, the National Public Tobacco Company launched a mass media campaign in 1995 to support privatization of the company. One theme of the campaign was that the company provided employment for Portuguese women and tried to improve their working conditions.

Media Censorship

Very few studies have examined the effect that advertising outside the United States may have on editorial policies. However, at least one British magazine that accepted cigarette ads admitted finding it difficult to endorse positions that contradicted its advertising (Jacobson and Amos 1985). In a study conducted during 1989–1990, investigators found that, of 71 women's magazines published in 13 European countries, 69 percent accepted cigarette ads and 54 percent allowed photographs of persons smoking (Amos and Bostock 1992a). Responses to a question on coverage of smoking and health were received from 63 of the magazines; only 22 percent had published an article of one page or more on the health effects of smoking, 37 percent had given more minor coverage to smoking and health, and 41 percent had not covered the topic at all. Magazines that accepted cigarette ads were less likely to have carried articles on smoking and health than were those that did not publish cigarette ads. A more recent study of 111 women's magazines in 17 European countries in 1996 and 1997 found that 55 percent of the magazines that responded accepted cigarette ads, but only 31 percent had published an article of one page or more on smoking and health in the previous 12 months; only 4 of the magazines had a policy of voluntarily refusing cigarette advertising (Amos et al. 1998). Magazines that accepted tobacco advertising seemed less likely to give coverage to smoking and health. Indeed, 1 German magazine stated that it informed tobacco companies if it was going to publish material on nonsmoking and that the companies could stop their ads for that issue. In a study of four popular women's magazines published in Ireland in 1989–1993, the proportion of space devoted to tobacco ads and articles that conveyed the positive attributes of smoking or that were critical of tobacco control interventions was 1.95 percent of total magazine space (Howell 1994). This amount of space was 14.5 times greater than the space devoted to articles about the risks from smoking. Many magazines throughout the world appear to promote smoking among women by showing fashion photographs of models smoking and photographs of well-known personalities smoking that accompany editorial articles. In South Africa, one tobacco company refused to pay for a cigarette ad in a women's magazine after the ad appeared opposite a letter criticizing articles that promoted smoking (Yussuf Saloojee, National Council Against Smoking, fax to Amanda Amos, October 11, 1995).

Bans and Restrictions on Tobacco Advertising and Promotion

Many countries have banned all tobacco advertising and promotion (e.g., Australia, Finland, France, Norway, Singapore, Sweden, and Thailand). In 1998, the European Union adopted a directive on tobacco promotion. This directive will ban most tobacco advertising and sponsorship in the 15 countries of the European Union by July 30, 2006. Other countries have banned direct advertising, and still others have instituted partial restraints. Such bans are often circumvented by tobacco companies through various promotional venues such as creation of retail stores named after cigarette brands or corporate sponsorship of sporting and other events. Moreover, national bans on tobacco advertising may be rendered ineffective by tobacco promotion on satellite television, by cable broadcasting, or via the Internet, because no international laws regulate these venues (Solberg and Blum 1995).

Even in countries with strong regulations restricting tobacco advertising, attempts are constantly made to bypass the spirit of these bans (Solberg and Blum 1995; Weir 1995). In 1994, after a ban on direct ads for tobacco on television in China, Reuters reported that Philip Morris had staged an "unprecedented marketing coup" by showing ads "dressed up as public affairs shows" (*Hong Kong Standard* 1994,

p. 94). Moreover, implementation of bans may be poor, despite the excellence of some bans on paper, as evidenced in Eastern European countries and Mongolia, or it may be undermined by cross-border advertising. For example, Singapore has a comprehensive ban on tobacco marketing, but tobacco-sponsored television programs reach Singapore from Malaysia.

Several countries, such as Japan and the United Kingdom, have generally adopted a nonlegislative approach to tobacco control in which marketing is governed by voluntary codes or agreements. (This position will change in the United Kingdom as it implements the European Union's directive on tobacco promotion described here.) These codes often contain specific regulations designed to reduce or prevent the targeting of women, especially young women. However, these voluntary agreements often fail to achieve their aims (Jacobson and Amos 1985; Amos et al. 1989; Toxic Substances Board 1989; Naett and Pollitzer 1991a; Mindell 1993). For example, the Tobacco Institute in Japan has advertising codes prohibiting the use of models younger than 25 years old, the promotion of sales to women, the depiction of women smoking in ads, and the placement of advertising in women's magazines. However, both Virginia Slims and Capri are advertised in Japan. Ads for Frontier Menthol Slims have featured young female models, and tobacco vending machines have shown Virginia Slims videotapes of young women dancing—all of which violate the codes. Indeed, the government of the United Kingdom concluded in its 1998 report "Smoking Kills—A White Paper on Tobacco" that little evidence existed that indicated previous voluntary agreements on tobacco advertising in the United Kingdom had worked (Secretary of State for Health et al. 1998, p. 47–48). The government therefore decided to enact legislation to implement the 1998 Directive of the European Union that will ban most tobacco advertising and promotion.

Members of the public health community argue that tobacco advertising and promotion activities increase consumption of tobacco products by increasing demand via new recruits. The tobacco industry, on the other hand, argues that advertising and promotional activities serve only to maintain consumer brand loyalty or cause current tobacco users to switch brands. Advertising and promotion activities, they contend, do not contribute to recruitment. Studies have generally shown a modest positive effect or no effect of advertising on consumption (Jha and Chaloupka 1999). These conclusions must be interpreted cautiously, because the studies have generally used highly aggregated data for all advertisers, in all media, and often over large populations. Use of such aggregated data hides small changes and thus minimizes the possible impact of an additional dollar of advertising expenditure on tobacco consumption (Jha and Chaloupka 1999). In other words, small changes that may be discernible in an analysis of less aggregated data would be lost or obscured in an analysis of aggregated data. Studies that use less aggregated data have shown larger positive effects of advertising on consumption; however, such studies are very costly (Jha and Chaloupka 1999) and therefore few, if any, have been conducted.

An indirect and less costly method of discerning the impact of tobacco advertising on consumption is examination of the effects of restrictions and bans on tobacco consumption (Saffer and Chaloupka 2000). The Toxic Substances Board of New Zealand, which examined the relationship between government policies on tobacco promotion and tobacco consumption trends in 33 countries between 1970 and 1986, concluded that the abolition of tobacco promotion was an essential part of a comprehensive policy to lower tobacco consumption (Toxic Substances Board 1989). The Regional Office for the Western Pacific World Health Organization called for a region free of tobacco advertising by the year 2000 to protect Asian children from commercial pressure to smoke (Warner 1986). The debate on the impact of such policy actions has been lively and partisan. Studies have examined the impact of partial cigarette advertising bans on consumption and the impact of total bans. The evidence suggested that partial bans have little or no effect on reducing tobacco consumption, whereas total advertising bans covering all media prove to be most effective in reducing tobacco consumption. Partial bans are ineffective because tobacco companies can substitute nonbanned media for banned media without reducing the amount of dollars spent on advertising. When advertising via all media is banned, the industry's opportunity to substitute among media is effectively constrained. Thus, advertising expenditure must be adjusted up or down. Using data from 1970 through 1992, a recent study of 22 high-income countries concluded that comprehensive bans on cigarette advertising and promotion can reduce smoking but that more limited partial bans have little or no effect (Saffer and Chaloupka 2000). The study concluded that if the most comprehensive advertising bans were in place, tobacco consumption would fall by more than 6 percent in high-income countries.

Another study (Jha and Chaloupka 1999) of 100 countries compared consumption trends over time among those with relatively complete bans on advertising and promotion and those with no such bans. In the countries with nearly complete bans, the downward trend in consumption was much steeper. Because it was not possible to control for all factors in every country, other factors could have contributed to the decline in consumption in some countries. In a review of the effects of various interventions on adolescent smoking, Willemsen and De Zwart (1999) concluded that advertising bans lead not only to decreased consumption among adults but also contribute to reductions in initiation among adolescents; gender-specific effects were not reported.

Protests Against Targeting of Women

Until recently, most of the challenges to the tobacco industry's targeting of women have been restricted to countries with the longest history of widespread smoking among women, including Australia, Canada, Finland, Sweden, and the United Kingdom (Jacobson 1992; Canadian Ministry of Health 1993). However, organizations in both developed and developing countries are beginning to protest tactics used to target women. In 1990, the International Network of Women Against Tobacco was formed by women from about 60 countries. One of the organization's three main goals is to counter the marketing and promotion of tobacco to women throughout the world (see "Tobacco Control Advocacy Programs by and for Women" in Chapter 5). Women's Action on Smoking is now active in many nations, including Japan, where smoking prevalence has been low among women but high among men (*World Smoking and Health* 1994). Women's Action on Smoking in Japan instituted a hotline to provide health advice to workers, mostly women who are exposed to cigarette smoke, and sent to callers information on the health effects of environmental tobacco smoke, advice on how to avoid exposure, and suggestions on advocating for workplace restrictions on smoking. In India in 1990, when Golden Tobacco Company began targeting women with a new brand, MS Special Filter (Gupta and Ball 1990), protests quickly followed. Ads for the brand featured Indian women wearing Western clothing in affluent settings, which are symbols of liberation for Indian women who are gaining financial and professional independence. A group of medical school professors and health workers wrote to newspapers urging them not to accept advertising for the cigarette (Crossette 1990). Members of Bailancho Saad, a little-known group of women activists, objected to the brand name as an inappropriate use of the prefix Ms., called for bans on advertising and a boycott of the cigarette, and defaced billboards advertising the product (Alvares 1990).

Summary

Tobacco marketing to women has emphasized themes such as slimness, social and physical attractiveness, style, romance, women's equality, independence, and even sassiness. Simply distilled, marketing has focused on self-image and the somewhat antithetical needs for social acceptance and independence. It is not known to what extent marketers have made use of the considerable body of published evidence on why women smoke, although tobacco marketing strategies echo a number of issues identified in the published research, including concerns about weight, tendencies toward risk taking and rebelliousness, and positive images of smokers.

Conclusions

1. Girls who initiate smoking are more likely than those who do not smoke to have parents or friends who smoke. They also tend to have weaker attachments to parents and family and stronger attachments to peers and friends. They perceive smoking prevalence to be higher than it actually is, are inclined to risk taking and rebelliousness, have a weaker commitment to school or religion, have less knowledge of the adverse consequences of smoking and the addictiveness of nicotine, believe that smoking can control weight and negative moods, and have a positive image of smokers. Although the strength of the association by gender differs across studies, most of these factors are associated with an increased risk for smoking among both girls and boys.
2. Girls appear to be more affected than boys by the desire to smoke for weight control and by the perception that smoking controls negative moods; girls may also be more influenced than boys to smoke by rebelliousness or a rejection of conventional values.
3. Women who continue to smoke and those who fail at attempts to stop smoking tend to have lower education and employment levels than do women who quit smoking. They also tend to be more addicted to cigarettes as evidenced by the smoking of a higher number of cigarettes per day, to be cognitively less ready to stop smoking, to have less social support for stopping, and to be less confident in resisting temptations to smoke.
4. Women have been extensively targeted in tobacco marketing, and tobacco companies have produced brands specifically for women, both in the United States and overseas. Myriad examples of tobacco ads and promotions targeted to women indicate that such marketing is dominated by themes of both social desirability and independence, which are conveyed through ads featuring slim, attractive, athletic models. Between 1995 and 1998, expenditures for domestic cigarette advertising and promotion increased 37.3 percent, from $4.90 billion to $6.73 billion.
5. Tobacco industry marketing, including product design, advertising, and promotional activities, is a factor influencing susceptibility to and initiation of smoking.
6. The dependence of the media on revenues from tobacco advertising oriented to women, coupled with tobacco company sponsorship of women's fashions and of artistic, athletic, political, and other events, has tended to stifle media coverage of the health consequences of smoking among women and to mute criticism of the tobacco industry by women public figures.

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