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## EFFECTS OF MEDIA ON PERSONAL AND PUBLIC HEALTH

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Health-related messages are in every kind of media one might use in a typical day. The breakfast cereal is advertised as “heart-healthy,” the margarine and toast “trans-fat free.” The morning newspaper contains stories about the latest medical research, presidential candidates’ health care reform proposals, and the nationwide obesity epidemic. The songs on the radio include explicit, even degrading sexual lyrics. Magazines offer weight loss advice, images of physical ideals and advertising for alcohol, cigarettes, and numerous health-related products. In Fall 2007, the evening TV lineup included ABC’s “Fat March,” a reality show featuring 12 obese individuals attempting to walk 575 miles in 10 weeks; “Nip/Tuck,” an FX Networks drama about plastic surgeons; and Fox’s “House, M.D.,” about an antisocial medical genius who always succeeds in pinpointing his patients’ mysterious illnesses. And almost anything about health can be found on the Internet—medical advice, support groups, health blogs, and even the opportunity to purchase prescription or non-prescription drugs.

Interest in the effects of such content has increased over the past 20 years as it has become clearer that the media do shape individuals’ health-related beliefs and behaviors. Studies typically have focused on the negative effects of advertising (e.g., for cigarettes, alcohol) and entertainment (e.g., unprotected sex) on individuals. In chapter 20 in this volume, Atkin and Rice examined how the intentional use of media, such as in public health media campaigns, can result in positive health attitudes and behaviors.

In this chapter we have organized the research on the health effects of the mass media along three dimensions: (1) level of influence (personal/public), (2) intention of the message producer regarding effects (intended/unintended), and (3) outcome (positive/negative). At the *personal level*, the mass media may provide information and models that stimulate changes—either positive or negative—in health-related attitudes and behaviors. At the *public level*, the mass media may influence both policy-makers’ and the public’s opinions about health issues; when policy makers respond by enacting new regulations or laws, these media influences contribute to changing the context in which people make choices about their health. The effects of the media may be *intended* by the message producer, as is the case when health educators develop public information campaigns, or may be *unintended*, as is the case when viewers adopt unhealthy behaviors that are portrayed

only for entertainment value on television programs. The outcome may be either *positive* or *negative* from a public health point of view. A typology of the kinds of effects generated by these three dimensions and some examples are presented in Table 21.1.<sup>1</sup>

## PERSONAL-LEVEL EFFECTS

### Commercial Product Advertising

Advertising is ubiquitous in all forms of the media in the United States and increasingly in other countries. Some of the most frequently advertised products, such as cigarettes and alcohol, have severe negative personal health effects.

#### Tobacco

Tobacco use, including cigarette and cigar smoking and the use of smokeless tobacco, continues to be the leading preventable cause of death in the United States and increasingly around the world. The World Health Organization (2007a) estimated that tobacco is responsible for one in 10 deaths in the world every year. Recognition of the harmful effects of smoking has led many countries to restrict tobacco advertising. More than 140 nations, including the United States, have signed a treaty agreeing to limit tobacco advertising, as well as protect nonsmokers from second-hand smoke (WHO, 2007b). In the United States, cigarette advertising was banned on television and radio in 1971, but flourished in other kinds of media, especially newspapers, magazines, billboards and in event promotion such as the Winston Cup stock car races. In the 1990s, as care for those with smoking-related illnesses claimed more of states' budgets and as evidence grew that the tobacco companies had been deceptive in promoting a deadly product, an

Table 21.1 Examples of the Potential Effects of the Mass Media on Personal and Public Health

| <i>Personal-level health effects</i> |   |
|--------------------------------------|---|
| Intended                             | <b>Positive</b> Entertainment-education: People have more positive beliefs about organ donation after Grey's <i>Anatomy</i> episode about organ transplantation<br><b>Negative</b> Marketing unhealthy products: Cigarette & alcohol ads directed at young people increases smoking & drinking  |
| Unintended                           | <b>Positive</b> Risk awareness: News about a young singer's breast cancer diagnosis increases mammography screenings<br><b>Negative</b> Activity displaced by "screen time": More media use, less physical activity, greater body weight  |
| <i>Public-level health effects</i>   |   |
| Intended                             | <b>Positive</b> Media advocacy campaigns: Increased media coverage raises community involvement in tobacco control efforts, leads to ban on smoking in public places<br><b>Negative</b> Advertising leverage: Cigarette industry's advertising clout reduces editorial content re: cancer risk, increases framing of smoking bans as imposition on personal freedom |
| Unintended                           | <b>Positive</b> Agenda-setting/framing: Positive news coverage of obesity epidemic leads to more federal funding for research<br><b>Negative</b> Budget priorities: Media coverage increases funding for war on drugs at expense of other health and social issues  |

agreement between the state Attorneys General and the tobacco companies further restricted the tobacco product promotions (Master Settlement Agreement, 1998). Despite these restrictions, the tobacco industry spent more than \$15.2 billion in 2003 to promote their products in the United States, the world's second-largest cigarette market (Federal Trade Commission, 2005).

#### Effects of Tobacco Marketing

Restrictions on tobacco marketing have been based to a large extent on research that has shown that all but about 10% of smokers begin during adolescence (U.S. Dept. of Health and Human Services, 1994) and that the younger people begin smoking, the more likely they are to become strongly addicted to nicotine (CDC, 1994). It is also clear that even young children are influenced by the allure of cigarette smoking aggressively promulgated by the tobacco industry. Studies have shown, for example, that one-third of 3-year-olds could make the association between the cartoon character Old Joe the Camel and a pack of cigarettes. In the three years after Old Joe was introduced, preference for Camel cigarettes increased from 0.5% to 32% among adolescent smokers (DiFranza et al., 1991). Studies in both the United States and England consistently have shown that the most popular brands among young people are the most heavily advertised (Pierce et al., 1991; Substance Abuse and Mental Health Services Administration, 2005; Vickers, 1992). Smoking initiation among young women increased abruptly when campaigns targeting women, such as the Virginia Slims' "You've come a long way, baby," were introduced (Pierce, Lee, & Gilpin, 1994).

Cross-sectional and longitudinal studies have shown that receptivity and exposure to cigarette advertising in magazines, on the radio, and increasingly on the Internet, as well as ownership of promotional materials (e.g., caps, lighters with cigarette brand logos), is related to increased tobacco use among young people (e.g., Biener & Siegel, 2000). Studies have found that awareness of and involvement with tobacco promotions even exceeds the influence of family members and peers who smoke (e.g., Pierce, Distefan, Jackson, et al., 2002). Experimental studies suggest that advertising promotions increase the perception among young people that smoking is normative, glamorous and risk-free (Pechmann & Ratneshwar, 1994).

#### Point-of-Purchase Marketing

As restrictions on tobacco advertising have tightened, tobacco companies in the United States have shifted their marketing strategies to spend more money on point-of-purchase marketing than all other forms of promotion (newspaper, magazine, billboard, and transit advertising) combined (Rabin, 2007). Much of this promotion is in convenience stores that young people visit frequently. Tobacco ads are more numerous and in children's line of sight (near candy and below three feet) in stores located near schools (Woodruff, Agro, Wildey, & Conway, 1995) and in neighborhoods with a higher proportion of residents younger than 18 (Pucci, Joseph, & Siegel, 1998). Studies have found, on average, 14 to 27 tobacco ads inside the stores and 3.6 to 7.5 ads outside (Feighery, Ribisl, Achabal, & Tyebjee, 1999). Experimental research suggests that in-store promotions affect adolescents' perceptions of the availability, use, and popularity of cigarettes, all factors that contribute to the likelihood that an adolescent will begin smoking (Henriksen & Flora, 2001).

*The Internet as Tobacco Marketing Tool*

In the future, research on tobacco marketing effects probably will focus on alternative marketing strategies such as in-store and Internet promotion as the tobacco industry looks for ways to recruit new users and keep current smokers. A few studies of the currently unregulated Internet suggest that it may be an important new venue for tobacco promotion. The number of Internet cigarette vendors appears to have increased substantially since 2000, especially as states have increased excise taxes on cigarette sales (Ribisl, Kim, & Williams, 2007). As Ribisl et al. warned in the Institute of Medicine's (2007) blueprint for ending the tobacco problem in the United States: "the Internet has the potential to be a more potent medium than static print advertising in magazines because of its ability to individually tailor marketing strategies and to engage in these activities relatively unnoticed in the vast World Wide Web" (p. 291). In 2004, more than one-third of U.S. middle school and high school students reported having seen advertisements for tobacco products on the Internet (CDC, 2005). It remains to be seen if such marketing tactics have an effect on youths' smoking and if proposed efforts to reduce the ease of obtaining tobacco products from Web vendors are effective (Bonnie et al., 2007).

*Alcohol*

Misuse of alcohol exacts a psychological, physical, and financial toll on individuals and families. Alcohol use is linked to family violence toward spouses and children, sexual assault, and homicide (Fals-Stewart, 2003; Grant, 2000). Increasing focus has turned to the problems of alcohol consumption among young people, as recent research suggests that earlier initiation has dramatic short- and long-term health consequences (Grube, 2004). In the United States each year, about 5,000 people younger than 21 die from alcohol-related injuries involving under-age drinking, including motor vehicle crashes, homicides and suicides (Stahre, Brewer, Naimi, & Miller, 2004).

Alcohol is used more frequently by more young people than any other drug, including cigarettes and marijuana; a majority of U.S. high school seniors say they currently drink alcohol, and more than one-quarter report binge drinking (five or more drinks consumed on one occasion) (Johnston et al., 2004). Despite prevailing misconceptions that European traditions of training children to drink at home prevent later problems with alcohol, binge drinking among adolescents is an even bigger problem in France, Germany, and Denmark than in the United States (Kantrowitz & Underwood, 2007).

Although parents and peers have a large impact on adolescents' decisions to drink, alcohol advertising and marketing also affect youths' expectations and attitudes about drinking. In the late 1990s, the U.S. Federal Trade Commission acknowledged the probable effects of alcohol marketing on underage drinking and encouraged the alcohol industry to adhere more closely to their own rules limiting marketing to people younger than 21 (Federal Trade Commission, 1999). Youth are more likely than adults to see alcohol marketing messages (Center on Alcohol Marketing and Youth, 2006). The distilled spirits industry lifted its self-imposed ban on television advertising in 1996; CAMY estimated that between 2001 and 2005, youths' exposure to TV alcohol ads increased by 41%, primarily due to the rise in distilled spirits advertising.

The alcohol industry has moved into other forms of media especially attractive to young people as well, including Internet websites that offer games, brand-logoed gifts and clothes, and sponsorships of sporting events and concerts featuring popular

musicians (Jernigan & O'Hara, 2004). Using "viral marketing" techniques, Anheuser-Busch encouraged users to send e-mail and mobile phone text messages to friends using the "Whassup?" phrase featured in its television ads (Cooke et al., 2002).

In alcohol ads, drinking is portrayed as normative and fun, with no negative consequences (Grube, 1993) and often includes images of physical and outdoor activities such as swimming, boating, and skiing that would be risky if engaged in while consuming alcohol, and animals such as the Budweiser lizards, ferrets and Clydesdale horses, that are especially appealing to children and adolescents (Collins, Ellickson, McCaffrey, & Hambarsoomians, 2007; Zwarun & Farrar, 2005).

*Effects of Alcohol Advertising*

Recent rigorous prospective studies suggest that increased exposure to alcohol advertising increases the likelihood of earlier initiation of drinking, especially among early adolescents (Ellickson, Collins, Hambarsoomians, & McCaffrey, 2005; Snyder, Milici, Slater, Sun, & Strizhakova, 2006; Stacey, Zogg, Unger, & Dent, 2004). One study of the effects of exposure to six sources of advertising (television beer advertisements, alcohol ads in magazines, in-store beer displays and concessions, radio-listening time, and ownership of beer promotional items) found that exposure at grade 6 (about 11 years old) was strongly predictive of 7th-grade intentions to drink and drinking (Collins, Ellickson, McCaffrey, & Hambarsoomians, 2007).

Recently, increased attention has been paid to the concept of "alcohol expectancies"—the idea that models of drinking as socially and physically rewarding can affect young people's own expectations about the positive benefits of drinking. Typically, children's earliest alcohol expectancies are negative (e.g., having three or four drinks would make me feel sick), but by 10 or 11 years old, expectancies become more positive (e.g., alcohol would make me feel happy, have a lot of fun). The stronger and more positive the alcohol expectancies, the more likely an individual is to begin drinking early in adolescence, and to develop problem drinking patterns (Dunn & Goldman, 1998).

Austin and colleagues' Message Interpretation Process (MIP) model helps explain how exposure to alcohol advertising may lead to underage drinking by influencing alcohol expectancies (Austin & Knaus, 2000). They have found that identification with and perceived desirability of the models in alcohol ads is a strong predictor of positive alcohol expectancies and alcohol use for adolescents; however, parental guidance decreases alcohol use directly and indirectly by decreasing the child's positive affect toward alcohol advertising (Austin, Chen, & Grube, 2006). More research like this that examines message processing, advertising's role in generating expectations about alcohol use, and individual use contexts will move us closer to understanding the sometimes subtle and indirect effects of alcohol advertising.

*Prescription Drug Advertising*

Direct-to-consumer (DTC) advertising of prescription drugs has been the subject of fierce controversy in the United States since 1997, when the Food and Drug Administration first began allowing consumer-targeted ads to include both the product name and the condition it is meant to treat without listing all possible risks. Growth in advertising expenditures has been dramatic, with total dollars spent growing 330% from 1996 to 2005. DTC ads are now common in both magazines (Curry, Jarosch, & Pacholok, 2005) and on television (Brownfield et al., 2004). Frosch et al. (2007, p. 6)

estimated that "American television viewers see as many as 16 hours of prescription drug advertisements (ads) each year."

Content analyses of both magazine (Curry, Jarosch, & Pacholok, 2005) and DTC ads on television (Frosch et al., 2007) generally have not supported manufacturers' claims that such advertising helps educate consumers. Frosch et al. (2007) examined DTC drug ads presented on the four major networks (ABC, NBC, CBS and Fox). None of the ads mentioned behavior changes that could substitute for drugs in managing conditions such as high cholesterol, hypertension or insomnia, although 19% of the ads mentioned behavior changes along with drug use. Nearly one in five of the ads (18%), however, suggested that behavior change alone—without use of a drug—would not be sufficient to manage the condition.

#### *Effects of DTC Advertising of Prescription Drugs*

Research has produced evidence of some positive and some negative effects of DTC advertising on behavior (Datti & Carter, 2006; DeLorme et al., 2006; Spence et al., 2005). Sumpradit, Fors, and McCormick (2002) found, for instance, that respondents generally felt that DTC advertising makes these drugs seem "harmless" and helps them make decisions about taking the drugs, although 70% of those who had talked with their doctors about an advertised drug said their primary purpose was to gather more information, not to request a prescription. Another survey of U.S. adults revealed that DTC ads prompted 6% of respondents to ask their physician about preventive care (Murray et al., 2004). Among those who had discussed an advertised drug with their doctor, 14% had disclosed a health concern, and 12% were told that they either had or were at risk for the condition mentioned in the ad. About 30% of respondents who discussed a drug ad with their doctor were prescribed the advertised drug and were told the drug likely would help them; 11.5% received the advertised drug despite the physician doubting it would help.

#### *Food and Nutrition*

Dramatic increases in obesity and obesity-related chronic diseases have occurred worldwide, and children have grown heavier in most countries in the world since the 1990s (James et al., 2001; Wang et al., 2002). In the United States about one in three children and teens are either overweight or at risk of becoming overweight (Ogden et al., 2002), increasing their risk for cardiovascular disease and other chronic diseases such as diabetes (e.g., Cook et al., 2003; Pinhas-Hamiel et al., 1996). Although a large body of research suggests that increased exposure to food advertising contributes to childhood obesity, at present, we know little about how other kinds of program and advertising content affect knowledge, attitudes, and diet quality, or the underlying mechanisms that may lead to obesity, such as overeating or snacking while viewing television and/or less physical activity (Committee on Food Marketing, 2006).

#### *Food Advertising*

The effects of food advertising have received extensive scholarly attention. In the United States and increasingly around the world, children and adolescents are now the "target of intense and specialized food marketing and advertising efforts" (Story & French, 2004, p. 1). In the United States and Great Britain, children view an average of

more than 20 commercials per hour. Half are for food products, and about 90% of the advertised foods are high in fat, sugar, and/or salt (e.g., Lewis & Hill, 1998). Even brief exposure to televised food commercials has been shown to affect preschool children's food preferences (Borzekowski & Robinson, 2001). TV viewing is related to children's requests for their parents to buy foods advertised on TV, as well as with higher overall caloric intakes (Story & French, 2004; Taras & Gage, 1995). The Institute of Medicine's recent analysis of more than 120 studies of food marketing to youth concluded that there is compelling evidence linking TV food advertising to childhood obesity increases (Committee on Food Marketing, 2006).

#### *Entertainment Media (TV, Movies, Music)*

Entertainment media also have significant unintended and typically negative effects on health-related knowledge, attitudes, and behaviors. We begin with the health subject of the previous section, food and nutrition.

#### *Obesity and Overweight*

##### *Time Spent Using Sedentary Media*

Media effects studies have tended to focus on the effects of content, but some studies have found associations between the sheer amount of time a child watches television and the child's weight (Saelens et al., 2002). Some have even shown a dose-response relationship between hours of usual TV viewing and the child's weight or Body Mass Index (Berkey et al., 2000; Dennison et al., 2002). Time spent watching TV may lower energy expenditure, given that the metabolic rate for watching television is the same or lower (when reclining) than the rate for resting (Montoye et al., 1996). Surprisingly, studies to date have not shown strong support for the corollary hypothesis that more time spent using sedentary media results in less time spent in more strenuous physical activity (Robinson, 1999, 2000).

##### *Eating Snack Foods*

Another possible mechanism is that media use provides a context for eating snack foods high in fat and/or sugar (Coon et al., 2001). A marked increase in snacking behavior has been observed concurrent with the U.S. obesity epidemic (Jahns, Siega-Riz, & Popkin, 2001). Snacking appears to be related to TV viewing patterns (Coon et al., 2001; Matheson et al., 2004). Francis et al. (2003) found what we might call the "couch potato chip" effect; TV viewing was associated with both higher intakes of energy-dense snacks and higher BMI in young U.S. girls.

##### *Diet/Activity Knowledge*

Some surveys have suggested that television is a primary source of nutrition information—with negative effects (Brook & Tepper, 1997; Nowak & Speare, 1996). In one longitudinal study of American elementary school children, TV viewing frequency predicted declines in nutritional knowledge and reasoning, especially for foods marketed as weight-loss aids (e.g., "fat free") (Harrison, 2005). Obviously, more research is needed to parse out the apparently multiple pathways between media use and obesity.

### Substance Use and Abuse

#### Portrayals of Alcohol, Tobacco, and Other Drugs

The frequency and kind of portrayals of alcohol, tobacco, and illicit drugs differ within and across entertainment media. The Roberts and Christenson (2000) analysis of portrayals across three popular kinds of media (movies, television, and music) still stands as the most comprehensive (see Table 21.2). More recent smaller-scale studies paint similar portraits of pervasive smoking and alcohol use in movies, frequent alcohol use on primetime television, with illicit drug use rare in most media except rap/hip-hop music (e.g., Gruber et al., 2005; Thompson & Yokota, 2001).

#### MOVIES

Alcohol and tobacco are depicted in almost all movies (Everett, Schnuth, & Tribble, 1998; Roberts & Christenson, 2000), in part due to paid product placements for alcohol (Jernigan & O'Hara, 2004). Although the tobacco industry agreed to ban paid product placement in movies in 1990, at least one study found that cigarette brands appeared as frequently after the ban as they had before (Sargent et al., 2001). Even G-rated animated movies and 75% of Disney's animated classics include alcohol, cigarettes or both—think of the beer keg in *Snow White and the Seven Dwarfs* and Cruella De Vil chain-smoking cigarettes in *101 Dalmations* (Thompson & Yokota, 2001; Ryan & Hoerrner, 2004). Actors in movies now smoke almost as often as they did in the 1950s (Glantz, Kacirk, & McCulloch, 2004).

In nearly all movie portrayals, smoking conveys physical attractiveness and social status (Everett, Schnuth, & Tribble, 1998) and is often associated with other risky activities, including sexual, violent, or dangerous behavior. Thus, tobacco may be used as a kind of character cue for "bad" women and "tough" men (Sargent et al., 2000), which may be attractive characteristics, especially for adolescent viewers. However, an analysis of 50 G-rated, animated feature films released between 1937 and 1997 found that "good" characters were shown using tobacco and alcohol as frequently as "bad" characters (Goldstein, Sobel, & Newman, 1999). No consequences of drinking were depicted in more than half of the 200 most popular movie rentals in 1996 and 1997. Characters' statements about drinking were far more likely to be positive than negative (Roberts, Henriksen, & Christenson, 1999).

Table 21.2 Frequency of Depiction and Consequences to Users of Alcohol, Tobacco, and Illicit Drugs in Movies, Entertainment TV, and Popular Songs

% referring or depicting substance/% depicting consequences to user

|               | Movies    | TV        | Popular songs |
|---------------|-----------|-----------|---------------|
| Alcohol       | 93% / 43% | 75% / 23% | 17% / 9%      |
| Tobacco       | 89% / 13% | 22% / 1%  | 3% / —        |
| Illicit drugs | 22% / 48% | 20% / 67% | 18% / 19%     |

Note: Proportions are based on 200 most popular movie rentals and 1,000 most popular songs from 1996 and 1997 (Roberts, Hendricksen, & Christenson, 1999), as well as four consecutive episodes of the 42 top-rated primetime series of the 1998–1999 season (Christenson, Henriksen, & Roberts, 2000), as summarized in Roberts and Christenson (2000). There were so few references to tobacco in the songs analyzed that the frequencies of consequences were not calculated.

Illicit drugs are rarely portrayed in mainstream movies. Illicit drug users are more likely to be shown to suffer negative consequences than alcohol or cigarette users. Addiction is rarely shown, and addicts usually are portrayed as evil rather than ill (Roberts & Christenson, 2000).

#### TELEVISION

Portrayals of smoking on television also have risen in recent years. About 20% of episodes of popular, non-educational primetime television programs depict tobacco use (Roberts & Christenson, 2000), and pro-smoking portrayals outnumber anti-smoking portrayals by a ratio of 10 to one (Dozier, Lauzen, Day, et al., 2005). References to alcohol use—visual and/or verbal—occur several times during an average hour of primetime television. An analysis of the top-20 teen and top-20 adult shows from Fall 1998–1999 found that more than three-fourths of the episodes included references to alcohol (Christenson, Henriksen, & Roberts, 2000). Alcohol was the drink of choice only on the adult-oriented shows, but even in teen shows one or more major characters were shown drinking, on average, 1.6 minutes per hour (Christenson et al., 2000). Adult drinkers on television tend to be regular and attractive characters, whereas young drinkers typically are portrayed less positively (Mathios, Avery, Bisogni, & Shanahan, 1998).

#### MUSIC AND MUSIC VIDEOS

Little systematic research has been done on substance use in music or music videos. It is clear, though, that portrayals differ dramatically by musical genre. About 10% of country music songs mentioned alcohol use. Most characterized drinking as problematic in some way, yet the same songs often presented alcohol use as normal and functional, a typical way of escaping problems, getting over a lost love, etc. (Roberts & Christenson, 2000).

Analyses of music videos have found that rap/hip-hop and rock music videos are the most likely to portray alcohol use and illicit drug use (Durant et al., 1997; Gruber et al., 2005). In one study across all music genres, no consequences were mentioned in 91% of the lyrics that included references to drinking (Roberts, Henriksen, & Christenson, 1999). Young adults were shown smoking in about 75% of music videos in the late 1990s (Durant et al., 1997).

#### Entertainment Content Effects on Alcohol, Tobacco, and Illicit Drug Use

Social cognitive theory predicts that behaviors that are shown frequently and without negative consequence are more likely imitated, and that behaviors of attractive characters are more likely modeled by observers (Bandura, 1986; Chapter 6, this volume). Robinson, Chen, and Killen (1998), for example, found that for every extra hour per day spent watching music videos, adolescents (13–14 years old) were 31% more likely to begin drinking alcohol during the next 18 months; an extra hour of regular television viewing increased their chances of drinking by nearly 10%. A longitudinal study of 10- to 14-year olds found that those with higher exposure to movie alcohol use were more likely than those who saw fewer alcohol-depicting movies to have started drinking one to two years later (Sargent, Wills, Stoolmiller, et al., 2006).

Studies have found that adolescent smokers were more likely than non-smokers to name actors who smoked either on- or off-screen as their favorite stars (Distefan,

Gilpin, Sargent, & Pierce, 1999). Three longitudinal studies have found associations between movie exposure and smoking initiation prospectively (Dalton, Sargent, Beach et al., 2003; Jackson, Brown, & L'Engle, 2007; Sargent, Beach, Adachi-Mejia, et al., 2005). Given the evidence so far, it appears reasonable to conclude that the unrealistic picture of tobacco and alcohol use presented in the movies and on television is contributing to the continued high levels of smoking and alcohol use among young people and may be undermining the extensive anti-smoking and underage drinking media campaigns underway across the country (see Chapter 20, this volume).

Few studies have tied portrayals of illicit drug use in any of the media directly to beliefs, attitudes or behaviors. Some have suggested, though, that aggregate patterns indicate media effects. Illicit drug use among adolescents declined significantly from the early 1980s through the early 1990s, but began to increase in the late 1990s, just as there seemed to be a comeback of marijuana in Hollywood movies such as *There's Something About Mary* (Strasburger & Wilson, 2002). More research is needed on how the frequency of positive or negative portrayals contributes to attitudes toward illicit drug use.

### Sexuality

Because Chapter 15 in this volume focuses primarily on sexually explicit content and pornography, we'll limit our discussion to mainstream entertainment content. In these media in the United States, sexual talk and displays are frequent and increasingly explicit, but rarely include the three Cs of healthy sexual behavior: Commitment, Contraceptives and Consequences (for reviews, see Escobar-Chaves et al., 2005; Kunkel et al., 2007). Although more than half of the couples who engage in sexual intercourse on television are in an established relationship, one in 10 are couples who have met only recently; more than one-quarter do not maintain a relationship after having sex (Kunkel et al., 1999). Only about one in 17 of the sexual scenes on television includes any message about the risks or responsibilities of sexual activity (Kunkel et al., 2007). Sexually transmitted diseases other than HIV/AIDS are almost never discussed, and unintended pregnancies are rarely shown. Abortion is a taboo topic, too controversial for commercial television and magazines (Walsh-Childers, Gotthoffer, & Lepre, 2002).

In the past decade, three large-scale longitudinal survey studies have shown that increased exposure to sexual content on television (Ashby, Arcari, & Edmonson, 2006; Collins et al., 2004) as well as in music, movies and magazines (Brown et al., 2006) predicts earlier transition to sexual intercourse among U.S. adolescents. Across the four kinds of media analyzed in the Brown et al. study, less than 1% of the sexual content contained any kind of sexual health information (defined as any mention or depiction of puberty, masturbation, contraception, unplanned pregnancy, or abortion) (Hust, Brown, & L'Engle, 2008).

### The Internet and Health

An impressive body of research already has suggested important individual-level health effects of the Internet. Among Internet users—71% of all American adults in 2007 (Demographics of Internet Users, 2006)—seeking health information has become one of the most common online activities (Greenberg, D'Andrea, & Lorence, 2003). By 2006, 80% of U.S. Internet users—113 million adults—had searched online for health information at least once, with higher use among women, college graduates, more

experienced Internet users, people younger than 65 and those with high-speed Internet access (Fox, 2006) and among individuals with chronic illnesses, the uninsured and those who have to travel longer distances for health care (Bundorf et al., 2006).

Respondents to the 2006 Pew survey generally gave online health information positive marks, with 56% saying online health information increased their confidence in doctor-patient conversations. However, 25% were overwhelmed by the amount of information, 22% were frustrated by inability to find information they sought, 18% found the information confusing, and 10% rated the information as frightening (Fox, 2006).

Health information-seeking on the Internet appears to have important outcomes, with more than half (53%) reporting that information found in their most recent online health information search affected how they care for themselves or for someone else; 42% classified the effect as minor, but 11% said the impact was "major" (Fox, 2006). Most respondents to an earlier Pew study used online information to supplement health professionals' advice, but about 18% reported using online information to diagnose or decide how to treat a medical condition without consulting their doctor (Fox & Rainie, 2002). In one study examining Internet use among newly diagnosed cancer patients, Bass et al. (2006) found patients who sought health information online were more likely to prepare lists of questions to ask their doctor and to actually ask questions during doctor visits. However, the study also showed less compliance with doctors' treatment recommendations among online health information users.

Numerous studies have raised doubts about the quality of health websites. In fact, low information quality was the characteristic most often mentioned in more than 160 articles evaluating online health information (Powell et al., 2005). Similarly, Eysenbach et al.'s (2002) review of 79 articles evaluating website quality showed that most expressed concerns about lack of completeness, inaccuracy and the difficulty of finding high-quality sites.

Thus far, relatively little research has examined in any depth exactly how consumers search for and process Internet health information. One exception was a study of English women's use of the Internet for information about hormone replacement therapy. The researchers found that women evaluated websites based on three key influences: information credibility, relevance and accessibility, and social identity, meaning the extent to which women felt they were like the women who produced or were featured in the websites. The study participants rejected several "medically credible sites . . . because they lacked sufficient social identification markers" (Sillence et al., 2007, p. 8).

Other researchers have found that although consumers say the source of website information plays a key role in their evaluations of its trustworthiness, in actual practice they often do not check either the author or website information or the site's owner/sponsor, nor do they read disclosure or disclaimer statements (Eysenbach & Köhler, 2002). The researchers found that after finding information quickly, only 21% of the German consumers participating could remember either the name of the website or the sponsoring organization where they had found specific information; only 23% could identify the type of website (.gov, .com, etc.). Fewer than 25% of consumers regularly follow recommended procedures for assessing online health information quality, such as checking the date and source of information (Fox, 2006).

### News Coverage of Health

About 40% of American adults report following health news closely, with the greatest amount of attention going to stories about public health issues, followed by health

policy stories and stories about specific diseases (Brodie et al., 2003). In our typology of kinds of effects, we would consider the outcomes of exposure to health stories in the news as unintended individual-level effects, given that most news organizations would not acknowledge themselves as providing health education.

### *Effects on Individual Health Knowledge and Behavior*

Several studies have revealed behavioral effects of exposure to health news, especially stories about celebrities' health problems. For instance, news coverage of former First Lady Nancy Reagan's decision to undergo a mastectomy influenced the behavior of other women diagnosed with breast cancer (Nattinger et al., 1998), and coverage of popular Australian singer Kylie Minogue's breast cancer diagnosis dramatically increased the number of mammography appointments made by Australian women, especially those who had not previously had a mammogram (Chapman et al., 2005).

Even without celebrities, however, news coverage can have unintended effects on individual health behaviors, some of them positive, some potentially negative. Researchers have found that news coverage had significant effects on both smoking cessation rates (Pierce & Gilpin, 2001) and adolescents' attitudes about and use of marijuana (Stryker, 2003). Other researchers have found effects of news coverage on use of iodized salt (Li et al., 2007), prostate cancer screening (Rai et al., 2007) and use of hormone replacement therapy (Haas et al., 2007). Research on "suicide contagion" has shown that news stories about suicide can have dramatic negative effects by encouraging "copycat" suicides (Stack, 2005); news outlets can reduce these effects by stressing negative definitions of suicide (Stack, 2005), not publishing details about how the individual died and including information about assistance available to those contemplating suicide (Stack, 2002).

## POLICY-LEVEL EFFECTS

### *News and Health Policy*

In addition to affecting individual health behaviors, news coverage can have important, usually unintended,<sup>2</sup> impacts on public health policy. Agenda-setting theory suggests that news media can help set the health policy agenda for citizens and policymakers by focusing attention on certain issues or diseases and ignoring others. The framing of health issues (e.g., focusing on individual behavior, rather than environmental factors, as the primary causes of poor health) also can affect the types of policy solutions the public and policymakers consider (Dorfman & Wallack, 2007). News influences on policy can be negative if media pressure spurs legislators to approve policies that have not been carefully considered or evaluated (Reese & Danielian, 1989). For instance, Shoemaker, Wanta, and Leggett (1989) argued that the media's intense coverage of the drug problem during Summer 1986 likely influenced the U.S. Congress's rapid—and, some argued, ill-considered—passage of a \$1.7 billion antidrug legislation package. Similarly, Benelli (2003) argued that overwhelmingly positive Italian news coverage of a controversial and unproven cancer treatment drove Italian government officials to authorize expenditures of more than 50 billion Italian lira<sup>3</sup> to test the effectiveness of the treatment.

Case studies have suggested that news coverage is most likely to influence public

health policy development when health experts agree on the solutions, when the change can occur at the local or state policy level, and when private citizen groups and/or public officials are working toward policy changes supported by the news content (Walsh-Childers, 1994a, 1994b). Research on news media influence on public policy has been relatively limited, however, and much remains to be studied in this area.

### *Intended Public-Level Effects*

A growing number of public health advocates have begun to incorporate media advocacy—the strategic use of mass media, especially news media, for advancing social or public policy initiatives (Pertschuk, 1988)—into public health campaigns. Some researchers have found evidence that media advocacy can indeed promote positive health outcomes. Treno and Holder (1997) found that media advocacy played a key role in community mobilization in a project aimed at reducing alcohol-related injuries. Harwood et al. (2005), however, found increased press coverage of proposed legislation to reduce underage drinking in Louisiana decreased the bill's likelihood of passage. They suggested that "press inattention has possible benefits for policy advocacy in at least two ways—to prevent mobilization of opponents and to permit stakeholders the opportunity to compromise during negotiations on bill content and wording" (Harwood et al., 2005, p. 255). Niederdeppe, Farrelly, and Wenter (2007) found that media advocacy activities by the Florida Tobacco Control Program contributed to passage of county ordinances regulating the placement of tobacco products to restrict children and adolescents' access, but the ordinances did not reduce youth smoking rates. The researchers cautioned that increased news coverage of youth smoking issues may have undermined efforts to support more comprehensive tobacco-control programs.

## CONCLUSIONS

Since the first edition of this book was published in 1994, we have seen a dramatic increase in research on media effects on health. Some of this research has been supported by federal agencies and states that have begun to realize that significant shifts in cultural norms are necessary if individuals are to be expected to behave in healthy ways and that mass media have significant potential to influence those cultural norms. For example, initial funds from a few states' settlements with the tobacco companies generated excellent new research on the effects of cigarette advertising on youth that ultimately affected the content of the Master Settlement Agreement and increased restrictions on tobacco product promotion. More recently, tobacco settlement funds have been used to support media advocacy efforts to encourage communities to enact tobacco control measures.

Another trend obvious here is that the research on the media's impact on health is becoming increasingly sophisticated and theoretically based, moving toward more complicated longitudinal designs that put media exposure into the context of individuals' lives. Austin's research on how alcohol advertising affects children's beliefs about alcohol and subsequent drinking is a good example of theory-based research that helps explain as well as describe the process of media effects (Austin, Pinkleton, & Fujioka, 2000). Similar theoretically driven research is needed to understand the effects of both news coverage (unintentional) and media advocacy efforts (intentional) on

public policies that alter the health environment. The health impact of the Internet, which had only begun to be studied when the second edition of this book was published in 2002, now has been the subject of hundreds of studies. We will need more theory-based research if we are to harness the Internet's potential to produce health benefits and limit its negative effects at both individual and public health levels.

Much of the early research on the media's impact on health focused on media impacts on children and young people, largely because of the perception that media effects would be greatest among these apparently more vulnerable groups. The growth in research on the Internet, on news effects, and on prescription drug advertising, however, reflects growing recognition that individuals do not "outgrow" vulnerability to media's effects, whether positive or negative.

Studying the media's health effects on children and adolescents remains a crucial endeavor, and one that—we hope—will continue to develop in sophistication. It is important to improve our ability to predict when, how and in which young people effects are most likely to occur with an eye toward what types of interventions may be most useful in forestalling negative effects and promoting positive outcomes. It is also clear, however, that as the Baby Boom generation ages, we will need more research that examines the media's health effects on adults, especially older adults. In 2002, U.S. Comptroller General David Walker, testifying before the U.S. Senate's Special Committee on Aging, predicted that as the Baby Boom generation becomes elderly, spending on Medicare, Medicaid, and Social Security "will nearly double as a share of the economy by 2035" (Walker, 2002, p. 1). At the least, then, economic concerns should motivate research leading to reducing the negative health effects of mass media and improving our use of the media's power to improve the health environment and individual health outcomes. We look forward to seeing what research in the next decade and beyond will reveal about media impacts on health and how we can increase the ratio of positive to negative effects.

### Notes

1. In this chapter we define health broadly, adopting the World Health Organization's definition: "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." We do not consider the media's effects on violence or on body image and eating disorders, two of the most intensively studied health-related topics, or public health campaigns because those topics are covered elsewhere in this volume (Chapters 13, 20, 22).
2. In the United States, journalists rarely acknowledge writing about health issues with the intent of spurring policy change. This may be less true outside the United States. Interviews with Irish health journalists, for instance, revealed that many see themselves as "advocates" for health care consumers, particularly those among the less powerful segments of society (Walsh-Childers, 2006). Similar results were produced in a survey of Swedish health journalists (Finer, Tomson, & Björkman, 1997).
3. Italy now uses the euro, so it's difficult to determine the dollar value of 50 billion lira in 2000, when the case occurred. However, based on a 2007 exchange rate, this would amount to \$36.71 million.

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