Cigarette Smoking in Popular Films:
Does It Increase Viewers’ Likelihood to Smoke?¹

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The effect of viewing smoking in popular films was investigated. Participants were instructed to rate main characters in scenes from popular films on 12 characteristics (e.g., attractive, sexy, sociable). One group watched 6 scenes from popular films in which the main character they rated was smoking. The other group watched scenes from the same 6 films in which they rated the same main characters who were not smoking. The participants rated the female characters shown smoking less favorably on all rated characteristics, but not the male characters. The male regular and occasional smokers had a higher current desire to smoke if the film characters they had viewed smoked. Both female and male participants who viewed the characters smoking were more likely to indicate a likelihood to smoke than were the participants who viewed the nonsmoking scenes.

After dropping between the mid-1970s and 1990, the incidence of tobacco use by young people has recently increased. Data from the Centers for Disease Control (CDC) Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 1998) found that the incidence of current cigarette smoking in high-school students increased from 27.5% in 1991 to 36.4% in 1997. Among college freshmen, the incidence of frequent smoking increased from 8.9% in 1987 to 14.6% in 1995 (Sax, 1997). Particularly large increases have been observed recently in occasional or some-day (i.e., smoking some days, but not every day of the week) smoking among midwestern college students. Hines, Fretz, and Nollen (1997) found a 63% increase in the number of occasional smokers between 1994 and 1996.

A number of reasons have been suggested for the increase in smoking among young people in the United States. These include cigarette advertising directed at children (Pollay, 1997; Turco, 1997), tobacco marketing through sporting events (Bloom, Hogan, & Blazing, 1997), the use of promotional items related to cigarettes (Gilpin & Pierce, 1997), easy access to purchasing cigarettes by children (Rigotti et al., 1997), and the depiction of smoking in popular movies (Stockwell

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CIGARETTE SMOKING & Glantz, 1997). It seems likely that most or all of these factors play some role in initiating and maintaining smoking among young people. Our study investigates how smoking in popular films may contribute to these processes.

Stockwell and Glantz (1997) documented an increase in the number of depictions of smoking in popular films in the last 10 years. They found that the rate at which cigarette smoking appears in films decreased from the 1960s to the 1980s, but by 1996 had increased back to the level of the 1960s. The high rate of smoking in movies continued in 1997 (Teti & Glantz, 1998). Stockwell and Glantz also found a difference in the type of characters depicted as smoking in movies. Between 1970 and 1989, fewer than 30% of the main characters in the films smoked; however, over half of the main characters smoked in films produced between 1991 and 1996. McIntosh, Bazzini, Smith, and Wayne (1998) also examined how smokers were depicted in popular films. They found that the films tended to ignore the negative associations and consequences of smoking, such as poor health, or lower education and socioeconomic status. Instead, smokers were depicted as more romantically and sexually active than were nonsmokers and as equal in terms of their attractiveness, intelligence, goodness, socioeconomic status, display of aggression, friendliness, and positive or negative outcome at the film's end.

Both the Stockwell and Glantz (1997) study and the McIntosh et al. (1998) study suggest that films do not portray the reality of tobacco use, but instead greatly exaggerate the number of persons who smoke, ignore real-world differences between smokers and nonsmokers, and ignore the negative consequences of cigarette smoking. The origin of this positive bias toward smoking in popular films is generally attributed to large promotional fees paid by cigarette manufacturers to film producers and movie stars. Chapman and Davis (1997) summarized the evidence regarding promotional fees paid by cigarette manufacturers and the placement of cigarettes in popular films. They noted that tobacco manufacturers' public records document these fees for the years preceding 1989. Cigarette companies reported that they have not paid direct promotional fees for product endorsement in films since 1989; however, they may still be supplying free cigarette-related props for films or nonmonetary quid pro quos for promotional placements. In addition, cigar manufacturers continue to place cigars in popular films, such as Independence Day and The First Wives' Club (Chapman & Davis, 1997).

Theoretical Approaches to the Issue of Media Influence on Smoking

Social Learning Theory

There is a strong perception in the tobacco-control community that favorable media depiction of smoking plays a key role in the initiation of smoking by youth (Chapman & Davis, 1997). Based on the principles of social learning theory
exposure to models of various types of behavior (e.g., aggressive, sexual, risk-taking) can teach new behaviors, can alter perceptions and attitudes about behavior, and can shape behavior by portraying norms for what is acceptable or appropriate behavior. Research by Bandura and others suggests that people tend to imitate or model the behaviors of both live and filmed persons whom they find attractive or similar to them, especially those who receive positive rewards or who go unpunished for their behavior (Bandura, 1965; Bandura, Ross, & Ross, 1963; for a full review, see Bandura, 1986). Although parents (Jackson & Henriksen, 1997) and peers (Graham, Marks, & Hansen, 1991) play a significant role in the social modeling of smoking behaviors, well-liked actors and actresses also may serve as attractive models for teenagers and young adults to emulate. Because the mass media present numerous potential models, researchers are interested in the influence of media depictions on viewers.

Much of the research exploring the influence of media images on viewers' beliefs, attitudes, and behaviors has been in the domain of aggression. Meta-analyses of both experimental and field studies of the relationship between observed media aggression and aggressive behavior toward others suggest that there is a modest, positive relationship (Paik & Comstock, 1994; Wood, Wong, & Chacere, 1991). As predicted by social learning theory, these findings are particularly strong when the viewer positively identifies with the aggressive character (Paik & Comstock, 1994). Although not studied as extensively, exposure to media images of sexual behaviors can alter people's perceptions of the frequencies of practices in the real world, their attitude about the acceptability of practices, and their behavior (Greenberg, Brown, & Buerkel-Rothfuss, 1993). In fact, when people are asked to think of models of both responsible and irresponsible sexual practices, they often refer to people in the media (Fabes & Strouse, 1984, 1987).

Research on the impact of media images on other health behaviors, such as alcohol use and smoking, suggests similar connections, but further investigations are warranted (Signorielli, 1993). Studies by Chassin and her colleagues (Barton, Chassin, Presson, & Sherman, 1982; Chassin, Presson, Sherman, Corte, & Olshavsky, 1981) suggest that adolescents' intentions to smoke are related to their favorable evaluations of advertising models and those whom they perceive as similar to them. A recent experimental study by Turco (1997) manipulated adolescents' exposure to cigarette advertisements in magazines and then measured their attitudes toward smoking and subsequent "liking of a smoker." She found that, among participants who had tried smoking, those who were exposed to cigarette advertisements in magazines were more likely to express positive attitudes toward smoking than were those in a cigarette-ad-absent control group. However, participants who had never smoked were unaffected by the experimental group condition. Additionally, although nonsmokers were evaluated more positively overall, participants who were exposed to cigarette ads held a more
favorable view of smokers than did those in the cigarette-ad-absent control group. Although the findings suggest that more favorable views of smoking may be elicited following exposure to media portrayals of smoking, neither the likelihood/intention of smoking nor actual smoking behavior was measured.

Cognitive Scripts and Cognitive Priming

Theories that emphasize the role of cognition have been applied to further understand how media images impact viewer behavior. For example, Huesmann (1986) emphasizes cognitive scripting to explain the relationship between exposure to media images and subsequent behavior. He suggests that media depictions provide behavioral scripts that, once encoded into memory, can be retrieved for future use when the viewers find themselves in a situation similar to the one presented. Thus, such scripts may serve as guides for future behavior in particular contexts. In his discussion of cognitive necassociation theory, Berkowitz (1984) also emphasizes the role of cognitive constructs in explaining media influences. Jo and Berkowitz (1994) suggest that exposure to certain images (cues) can prime or evoke certain associations, feelings, or thoughts that then play a role in whether or not a behavior is enacted. Therefore, the same image can activate a different set of associations depending on the unique perspective and experience of the viewer.

In addition to providing attractive models to emulate, exposure to portrayals of smoking in films may alter viewers' behavior by providing scripts for when, where, and under what conditions smoking is an appropriate or desirable behavior, and by priming the desire or urge to smoke among individuals who associate smoking images with positive thoughts and feelings.

Categories of Smokers

Recent studies point out that neither smokers nor nonsmokers are uniform groups. Researchers have identified groups of smokers who seem to smoke less than regular or daily smokers. Shiffman (1989) identified a group of smokers who smoke less than traditional smokers; a group that he called chippers. Chippers are long-time, nondependent smokers who smoke up to five cigarettes per day at least 4 days per week. The CDC added some-day smoking to its definition of smoking in 1992 (CDC, 1994). The CDC defined some-day smoking as smoking cigarettes some days but not every day of the week, and smoking at least 100 lifetime cigarettes. A slightly different definition was used by Hajek, West, and Wilson (1995) to describe a group of "very light smokers" who had developed a stable pattern of smoking fewer than six cigarettes per day. Chippers and very light smokers have developed stable patterns of light smoking, even though they inhale the tobacco smoke. The some-day smokers, as defined by the CDC, include those who are initiating smoking or attempting to quit smoking, as well
as the more stable light smokers. In 1992, some-day smokers were about 17% of all smokers among high school students (CDC, 1994). Some-day smokers are even more numerous among college students. Hines et al. (1997) found that about half of the midwestern college students who had smoked 100 lifetime cigarettes were some-day smokers.

Longitudinal studies suggest that some-day smokers are less stable in terms of smoking patterns over time than are either regular smokers or nonsmokers (Hines, Nollen, & Fretz, 1996; Hines, Throckmorton-Belzer, & Cahoe, 1998). This may be because their smoking is more related to personal and interpersonal factors than to nicotine addiction. Thus, they may be particularly affected by media promotion of smoking, which may reduce their probability of quitting or increase their smoking frequency and lead to daily smoking.

The differences in smoking behavior between regular and some-day smokers are now recognized. It has been suggested recently that there may also be important differences among those who classify themselves as nonsmokers. Pallonen, Prochaska, Velicer, Prokhorov, and Smith (1998) suggested that there are stages of smoking acquisition, similar to the stages that have been studied for smoking cessation. The nonsmokers who are experimenting with smoking are at a later stage of acquisition than are those who do not smoke at all. Media promotion of smoking may increase the positive feelings toward smoking or decrease the negative feelings toward smoking for both groups of nonsmokers. These changes may advance their stage of readiness to initiate smoking.

Rationale and Design of the Present Study

Although many researchers have studied the prevalence and content of media images of smoking, fewer studies attempt to measure the effect of such images on viewers' intended or actual smoking behaviors (Signorielli, 1993). While multiple methods have been used to study the impact of media aggression on aggressive behavior (i.e., laboratory and field experiments, and correlational and longitudinal studies), correlational studies have been employed largely in the area of smoking (Strasburger, 1995). Overall, these studies suggest a positive relationship between media images and smoking (see Strasburger, 1995, for a review).

Despite concern about the impact on adolescent and young adult viewers of the increased number of characters smoking cigarettes in popular films, to the best of our knowledge, no one has systematically examined this issue. Using an approach similar to that used by Turco (1997), we sought to manipulate young adults' exposure to characters' smoking in popular films to determine its effect on perceived attractiveness of the character, self-reported immediate urge to smoke, and self-reported likelihood to smoke across a variety of situations where smoking often occurs. Social learning theory suggests that attractive models are particularly likely to be emulated and, as noted previously, current popular films
often portray attractive characters smoking cigarettes (McIntosh et al., 1998). We evaluated whether characters shown in the popular film clips used in the study were rated as attractive on 12 dimensions (e.g., attractiveness, desirability, sociability). We hypothesized that all characters would be rated as attractive whether they were shown smoking or not smoking.

Additionally, we hypothesized that viewing attractive characters smoking in popular films would increase participants’ self-reported likelihood or intention to smoke in several situations where smoking is likely to occur. Based on the instability of the smoking patterns of some-day smokers, we expected that this group might be particularly influenced.

Previous research suggests that, among smokers, high levels of smoking urge can be generated through exposure to smoking cues or through imagined smoking cues (Drobes & Tiffany, 1997). Similarly, we expected that exposure to smoking by characters in films would increase the immediate urge to smoke among regular smokers. Additionally, we tested whether viewing film characters smoking increases the urge to smoke among some-day smokers or nonsmokers.

In order to conceal the purpose of the study from the participants, two precautions were taken. First, for the participants who rated film characters who were smoking, film clips were interspersed where no smoking occurred, so it would not appear that they were rating only characters who were smoking cigarettes. Second, the participants were told that they were participating in two experiments, one on media images and a second on rating situations in which college students may be likely to smoke. As will be described, appropriate details were added to make this deception credible.

Method

Participants

Participants were 151 college students from a midwestern university recruited from the General Psychology subject pool to participate in the study, as partial fulfillment for a course requirement. The sample included 67 females and 84 males between 17 and 41 years of age ($M$ age = 20.08 years); 87% described themselves as European American (Caucasian), 9% as African American, 2% as Asian American, and 1% as Hispanic American.

Film Segments

Selection of actors and actresses. The selection of actors and actresses was determined from a pilot study in which 160 General Psychology students were asked to list actors and actresses whom they liked and thought were attractive and popular. On the free-response task, participants listed a total of 70 actresses
and 87 actors. The four males most frequently listed were (percentage is listed in parentheses) as follows: Brad Pitt (52), Tom Cruise (50), George Clooney (18), and John Travolta (16). Films were located in which Brad Pitt, Tom Cruise, and John Travolta were shown smoking, and segments from these films were used in the experimental condition. The top six female actresses listed were Julia Roberts (24), Alicia Silverstone (23), Neve Campbell (23), Sandra Bullock (22), Claire Danes (22), and Jennifer Aniston (19). Films were located in which Julia Roberts, Sandra Bullock, and Jennifer Aniston were shown smoking, and segments from these films were used in the experimental condition. Using this criterion, all actors and actresses chosen for the study were European American, reflecting endorsements by a predominantly European American subject pool in the pilot study.

Selection of film segments. One smoking scene and one nonsmoking scene from the same film were chosen per actor and actress. Actors and actresses shown in smoking scenes were considered the target stimuli for the experimental group. The same actors and actresses shown not smoking were considered the target stimuli for the control group. Specific scenes chosen contained 3-min segments where the clothing and appearance of the character were comparable, and the noticeable difference between the smoking and nonsmoking scenes was whether or not the character was smoking. In some of the segments where the main character was shown smoking, other characters also were shown smoking. In the nonsmoking scenes, none of the characters were shown smoking.

Distractor film segments. Distractor film segments were added by selecting one nonsmoking clip for one additional actor and actress (George Clooney and Alicia Silverstone), and showing these clips interspersed within the target clips for both the smoking and the nonsmoking groups. These additional clips served to distract from the sequence of clips where each character was smoking (for those viewing smoking scenes).

Questionnaires

Each participant was given a booklet containing a demographic questionnaire, a media survey, a character rating scale, a smoking status questionnaire, and a smoking scenario questionnaire.

Demographic questionnaire. The demographic questionnaire contained descriptive items assessing the participant's age, ethnicity, and gender.

Media survey. The media survey contained descriptive items that assessed the frequency and duration of media usage, including number of movies watched in the average month; amount of exposure to television, magazines, music, and music videos; and names of favorite actors and actresses.

Rating of character attractiveness and perceived similarity. The character rating scale required the participants to rate each character immediately after
viewing each movie clip. The 12 qualities related to attractiveness that also seem to be included in cigarette advertising were rated using a 5-point Likert-type scale ranging from 1 (having less of the quality) to 5 (having more of the quality). For example, the item on physical attractiveness was anchored by less physically attractive and more physically attractive. Participants rated each character on the following qualities: physically attractive, sexy, in shape, sophisticated, wise, adventurous, cool, sociable, popular, desirable for a date, feminine, and masculine. As a measure of perceived similarity, participants also rated whether each character was “like me.”

Smoking status questionnaire. The smoking status questionnaire contained descriptive items that assessed each participant’s self-reported smoking history and current smoking status. Classification as regular, some-day, or nonsmoker followed the CDC (1994) guidelines. Thus, participants who reported smoking cigarettes every day of the week and who had smoked at least 100 lifetime cigarettes were classified as regular smokers. Those participants who reported smoking some days of the week but not every day of the week and who had smoked at least 100 lifetime cigarettes were classified as some-day smokers. Those who did not meet these criteria were classified as nonsmokers. The nonsmokers were also asked if they had ever smoked and how many cigarettes they had smoked since coming to college. An additional 7-point Likert-type item assessed the participant’s desire to smoke at that point in time.

Smoking scenario questionnaire. The smoking scenario questionnaire contained 18 scenarios in which participants rated their likelihood of smoking in a specified situation using a 5-point Likert-type scale. Six situations that previous studies suggested may be tempting to nonsmokers or to occasional smokers (cf. Hines et al., 1997) were rated by participants. Each of these six situations was rated under three levels of cigarette availability: Level 1, in which a cigarette must be purchased or requested; Level 2, in which a cigarette is offered or a pack is available (if alone); and Level 3, in which a cigarette is being pushed by friends. These situations were as follows: at a social drinking event with same-gender friends when others are smoking; at a social drinking event with same- or other-gender friends when others are smoking; on a date when the date is smoking; under high stress; when “hanging out” with friends who are smoking; and when bored.

Design

The design of the present study utilizes one experimental variable (experimental vs. control group) and two attribute variables (gender and smoking status). All dependent measures (ratings of the characters, perceived similarity to the character, likelihood of smoking, desire to smoke) were analyzed using a 2 × 3 × 2 between-groups ANOVA with the gender of the rater, smoking status of the
rater (regular smoker, some-day smoker, nonsmoker), and experimental group (characters depicted smoking vs. characters depicted not smoking) forming the between-group variables.

Procedure

The study was administered to groups not exceeding 14 participants, and assignment to the smoking experimental condition ($N = 71$) or nonsmoking control condition ($N = 80$) was randomized. Participants in the experimental condition viewed six clips in which the character to be rated smoked, and two interspersed clips where no smoking occurred. Participants in the control condition viewed eight clips in which no character smoked. Throughout the experimentation period, participants were instructed from a standardized script. Participants were told that they would be participating in two separate experiments. The purpose of this deception was to conceal the link between viewing the movie scenes and the later rating of likelihood of smoking.

First, each participant was handed an informed consent form for "Experiment 1." After the consent forms were gathered, each participant was given an experiment booklet. Participants were instructed to fill out the first section of the booklet (the demographic and media survey) at his or her own pace, and to indicate to the experimenter when finished.

When all of the participants had completed this section, they were instructed to watch carefully each movie clip. A total of eight movie clips were shown (4 female characters and 4 male characters). Prior to each clip, the specific character to be rated was specified. Movie clips were sequenced by alternating female and male characters. After each individual movie clip ended, participants were asked to complete the character rating scale for the specific character. Participants were instructed to rate characters strictly from each specific movie clip. After all of the participants had completed the ratings for the particular character, the experimenter showed the next movie clip until all eight clips had been shown.

After all of the participants had completed the rating scale for the final character, they were told that they had just completed Experiment 1. Participants were then notified that they would not be given an explanation of the study at that time, and if they wanted to be given an explanation, they should put their names and addresses on an envelope that was fastened to the last page of the rating scale and they would be sent a written debriefing in the mail. Envelopes were then gathered and placed in a box that was kept separate from the completed questionnaires.

Next, participants were told that they were about to begin "Experiment 2," and each participant was given an informed consent form. After the completed consent forms were gathered, participants were asked to turn (in their booklets) to the set of questionnaires designated as Experiment 2. Participants were instructed to fill out the smoking status questionnaire and then the smoking
scenario questionnaire. Upon completion of those questionnaires, participants were informed that they would not receive an explanation of Experiment 2 at that time, and if they wanted to be given an explanation, they should put their names and addresses on an envelope that was fastened to the last page of the booklet. When they had completed all of the questionnaire items, participants were notified that they could hand in their booklets, place the envelopes in another box, and exit the experimentation room. Debriefing of participants was handled by mailing a written explanation of the study to each subject who requested a debriefing by completing one of the provided envelopes.

Results

Smoking Status and Movie Viewing by the Participants

Participants' self-reported smoking status was similar to that reported by Hines et al. (1997), with 21.2% identifying themselves as daily smokers, 18.5% as some-day smokers, and 60.3% as nonsmokers. There were no significant differences in smoking status between the two experimental groups, \( \chi^2(2, N = 151) = 0.62, p = .73 \). The male regular smokers reported smoking more cigarettes per day \((M = 17.9, SD = 6.9)\) than did the female regular smokers \((M = 14.3, SD = 8.2)\), but the difference was not statistically reliable, \( t(30) = 1.35, p = .186 \). The male occasional smokers also reported smoking a greater number of cigarettes per week \((M = 7.6, SD = 4.6)\) than did the female occasional smokers \((M = 2.2, SD = 1.4)\), and this difference was significant, \( t(24) = 3.10, p = .005 \).

The participants reported watching a mean of 7.0 movies per month, with no significant differences in number of movies related to treatment group, gender, or smoking status.

Ratings of the Characters

The ratings were summed across the three male characters who smoked in the smoking treatment condition and across the three female characters who smoked in the smoking treatment condition for each of the rated dimensions. The data were then added across 12 of the rated dimensions (e.g., attractive, sexy, popular), so that a single score was obtained for each participant for the three male characters and a single score was obtained for the three female characters. Each of the 12 dimensions included had a significant positive correlation with the total score \((r_s \text{ range from } .60 \text{ to } .86 \text{ for the female characters and from } .59 \text{ to } .79 \text{ for the male characters})\). The masculine dimension was not included in these total scores for the female characters, and the feminine dimension was not included in the total scores for the male characters, since the ratings for each of these dimensions had a significant negative correlation with the total scale \((\text{for feminine ratings of male characters, } r = -.24; \text{ for masculine ratings of female characters,})\).
Thus, different dimensions were used to compute the total scores for the male and female characters. The scores for the male and for the female characters were analyzed separately by ANOVA, with gender of the rater, smoking status of the rater (regular smoker, some-day smoker, and nonsmoker), and experimental manipulation (characters depicted smoking vs. characters depicted while not smoking) as between-group variables. As hypothesized, both the female characters ($M = 3.7, SD = 0.5$) and the male characters ($M = 3.4, SD = 0.6$) had overall positive ratings.

There were no significant main effects or interactions for the ratings of the male characters in the films related to experimental manipulation or to participants’ smoking status. However, there was a significant main effect for the gender of the rater, $F(1, 147) = 6.25, p = .01$, with the female participants rating the male characters more positively. The mean rating for the male characters was 3.3 (SD = 0.5; on a 5-point scale) when rated by male participants and 3.6 (SD = 0.6) when rated by female participants.

For the female characters, there were no significant main effects or interactions for gender of rater, so the data were combined across gender. For this analysis, there was a significant main effect of experimental manipulation, $F(1, 148) = 14.64, p < .001$ (characters smoking, $M = 3.5, SD = 0.6$; characters not smoking, $M = 3.9, SD = 0.4$); a significant main effect of smoking status of the rater, $F(2, 148) = 3.99, p = .02$ (regular smokers, $M = 3.9, SD = 0.5$; occasional smokers, $M = 3.8, SD = 0.6$; nonsmokers, $M = 3.7, SD = 0.5$), and a significant interaction between experimental manipulation and rater smoking status, $F(1, 148) = 3.40, p = .04$. This interaction is shown in Figure 1. For significant interactions, differences between means are reported when $p = .05$. As can be observed in Figure 1, when the female characters were smoking, they were rated lower by both the occasional smokers (smoking characters, $M = 3.5, SD = 0.5$; nonsmoking characters, $M = 4.1, SD = 0.5$) and the nonsmokers (smoking characters, $M = 3.4, SD = 0.5$; nonsmoking characters, $M = 3.9, SD = 0.4$), but not by the regular smokers (smoking characters, $M = 3.9, SD = 0.6$; nonsmoking characters, $M = 3.9, SD = 0.4$).

The effect of the experimental manipulation accounted for 9.3% of the variance in global ratings, and the interaction between the experimental manipulation and smoking status accounted for an additional 4.5% using the procedures described by Hays (1988). Cohen (1977) suggested that an effect size of at least 1% of the variance can be considered a small effect, an effect size accounting for at least 5.9% of the variance can be considered a medium effect, and an effect size accounting for at least 13.8% of the variance can be considered a large effect. We will follow this terminology in interpreting the effect-size estimates in these analyses. Thus, the experimental manipulation in the present analysis is considered a medium effect, while the interaction between experimental manipulation and smoking status is considered a small effect.
Figure 1. Mean ratings of female characters as a function of whether they were shown smoking and of the smoking status of the raters (1 = least positive, 5 = most positive).

The data for the individual items broken down by experimental manipulation and by male and female characters are shown in Figure 2. As can be observed, the effect of whether the character was depicted as smoking was highly consistent for the female characters, with the characters rated higher on all 11 dimensions when they were shown not smoking. However, whether they were shown smoking had no significant overall effect for the male characters.

The data were also analyzed separately for each of the three male and female characters. These data were highly consistent across characters, with all three female characters showing decreased positive ratings in the smoking condition, and no male characters showing decreased ratings in the smoking condition. In brief, the data from each of the individual characters were consistent with that of the same-gender group. There were also a male and female character who were shown in identical nonsmoking clips to the experimental and the control groups. As expected, their ratings did not differ between groups, all $F$s < 1.

Perceived Similarity of Characters

Social learning theory indicates that individuals are more likely to model others whom they perceive as similar to themselves. The participants rated how much each screen character was "like me." The scores for this scale are also shown in Figure 2. These scores were less positive than were the scores on the attractiveness scale (for male characters, $M = 2.3$, $SD = 1.0$; for female characters, $M = 2.7$, $SD = 0.9$). The data were analyzed by ANOVA, with the gender of the characters as a within-group variable, and the experimental manipulation
Ratings of Female Characters

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<tr>
<th>Character Smoke</th>
<th>Characters Don't Smoke</th>
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Mean Ratings

Attr  Sexy  InSh  Soph  Wise  Adven  Cool  Socia  Popu  Date  Femi  LiMe

Ratings of Male Characters

Mean Ratings

Attr  Sexy  InSh  Soph  Wise  Adven  Cool  Socia  Popu  Date  Masc  LiMe

Figure 2. Mean ratings of male and female characters for each of the scale items as a function of whether the characters were shown smoking (1 = least positive, 5 = most positive). Attr = attractive; InSh = in shape; Soph = sophisticated; Adven = adventurous; Socia = sociable; Popu = popular; Date = desirable as a date; Femi = feminine; Masc = masculine; and LiMe = like me.

(smoking status of the rater) and gender of the rater as between-group factors. The main effects of the gender of the character, $F(1, 139) = 40.48, p < .001$; the smoking status of the rater (regular smoker, $M = 2.8, SD = 0.7$; occasional smoker, $M = 2.6, SD = 0.7$; nonsmoker, $M = 2.4, SD = 0.7$), $F(2, 139) = 3.91, p = .02$; and the gender of the rater (male rater, $M = 2.7, SD = 0.7$; female rater, $M = 2.3, SD = 0.7$), $F(1, 139) = 4.29, p = .04$, were significant. The significant Gender of Rater × Gender of Character interaction, $F(1, 139) = 88.62, p < .001$, reflected that the female participants gave significantly more positive scores to the female characters than to the male characters (female character, $M = 2.9, SD = 0.9$; male characters, $M = 1.7, SD = 1.0$), while the male participants gave more positive scores to the male characters (female characters, $M = 2.6, SD = 0.8$; male characters, $M = 2.8, SD = 0.9$) than to the female characters. The significant interaction between gender and smoking status of the rater, $F(2, 139) = 3.36, p = .04$, reflected the significantly more positive scores by the male regular smokers ($M = 3.1, SD = 0.8$) than by the female regular smokers ($M = 2.4, SD = 0.9$), but not by the occasional smokers (male, $M = 2.6, SD = 0.9$; female, $M = 2.8, SD = 0.4$) or the nonsmokers (male, $M = 2.6, SD = 0.7$; female, $M = 2.2, SD = 0.7$). The
Smoking Status × Experimental Manipulation × Gender of Character interaction, $F(2, 139) = 3.72, p = .03$, was also significant. Follow-up ANOVAs of the male and female characters analyzed separately showed a significant Smoking Group × Experimental Manipulation interaction for the female characters, but not for the male characters. This interaction reflected the tendency of the occasional smokers and nonsmokers, but not the regular smokers, to rate the female characters as more “like me” when they were shown not smoking (occasional smokers, $M = 2.8, SD = 0.9$; nonsmokers, $M = 2.9, SD = 0.8$; regular smokers, $M = 2.9, SD = 0.8$) than when they were shown smoking (occasional smokers, $M = 2.6, SD = 1.0$; nonsmokers, $M = 2.4, SD = 0.8$; regular smokers, $M = 3.2, SD = 0.8$).

Desire to Smoke

After the participants rated the characters from the eight film scenes, they were asked to indicate how much they currently wanted to smoke a cigarette. The data were analyzed by ANOVA with experimental manipulation, gender of rater, and smoking status of rater as between-group variables. The main effects of gender (male, $M = 2.2, SD = 2.0$; female, $M = 1.6, SD = 1.4$), $F(1, 143) = 15.22, p < .001$; and smoking status (regular smokers, $M = 4.5, SD = 1.7$; occasional smokers, $M = 2.2, SD = 1.6$; nonsmokers, $M = 1.1, SD = 0.7$), $F(2, 143) = 108.20, p < .001$, were significant. The Gender × Smoking Status interaction was significant, $F(2, 143) = 4.29, p = .02$, reflecting the much higher expressed desire to smoke for the male than the female regular smokers (male, $M = 5.0, SD = 1.8$; female, $M = 3.9, SD = 1.9$) and occasional smokers (male, $M = 2.6, SD = 1.7$; female, $M = 1.3, SD = 0.8$), but not for the nonsmokers (male, $M = 1.2, SD = 0.9$; female, $M = 1.0, SD = 1.5$). The significant Experimental Manipulation × Gender interaction, $F(1, 143) = 5.27, p = .02$, reflected the higher expressed desire to smoke for males in the experimental condition than in the control condition (experimental, $M = 2.4, SD = 2.0$; control, $M = 2.2, SD = 2.0$), but not for females (experimental, $M = 1.6, SD = 1.3$; control, $M = 1.7, SD = 1.4$). The Experimental Manipulation × Gender × Smoking Status interaction was also significant, $F(2, 143) = 3.46, p = .03$. The mean desire to smoke for each of the 12 groupings is shown in Figure 3. As can be observed, the male participants in the two smoking groups who viewed the characters smoking expressed a greater desire to smoke (regular smokers, $M = 5.4, SD = 1.5$; occasional smokers, $M = 3.4, SD = 1.7$) than did the male smokers who viewed the nonsmoking scenes (regular smokers, $M = 4.8, SD = 1.9$; occasional smokers, $M = 1.5, SD = 0.8$). The female participants in the two smoking groups did not express a higher desire to smoke in the experimental group (regular smokers, $M = 3.7, SD = 1.4$; occasional smokers, $M = 1.0, SD = 0.0$) than did the control group (regular smokers, $M = 4.0, SD = 1.9$; occasional smokers, $M = 1.5, SD = 1.0$). The nonsmokers expressed very little desire to smoke, in both the experimental group (male, $M = 1.0, SD = 0.0$; female, $M = 1.0$,
Figure 3. Mean desire to smoke (1 = no desire, 7 = highest desire) as a function of whether the film characters viewed were shown smoking and the gender and smoking status of the participants. R = regular smoker; Oc = occasional smoker; and N = nonsmoker.

SD = 0.0) and the control group (male, $M = 1.3, SD = 1.2$; female, $M = 1.1, SD = 0.2$). The effect of smoking status accounted for 62.1% of the variance in desire to smoke, and the effect of gender accounted for 10.3% of the variance. The Smoking × Gender interaction accounted for 6.1% of the variance, the Experimental Manipulation × Gender interaction accounted for 3.8%, and the three-way Experimental Manipulation × Gender × Smoking status interaction accounted for 5.0% of the variance.

Likelihood of Smoking

The participants rated their likelihood of smoking in six situations in which smoking is likely to occur. The six situations were modified by three levels of cigarette availability (cigarette must be requested, cigarette is offered, cigarette is pushed), for a total of 18 scenarios. The data were analyzed by ANOVA with the three levels of availability as a within-group variable; and experimental manipulation, gender, and smoking status as between-group variables. The main effect of levels was not significant, $F(2, 270) = 2.77, p = .07$. The main effect of experimental manipulation was significant, with those who viewed the smoking clips reporting a greater likelihood of smoking than those who viewed the nonsmoking clips (experimental, $M = 2.5, SD = 1.6$; control, $M = 2.2, SD = 1.5$), $F(1, 135) = 7.44, p = .007$. This effect accounted for 5.2% of the variance. As would be expected, there was a large difference associated with smoking status (regular smokers, $M = 4.7, SD = 0.5$; occasional smokers, $M = 3.3, SD = 1.0$; nonsmokers, $M = 1.3, SD = 0.4$), $F(2, 135) = 446.75, p < .001$. This effect accounted for
86.7% of the variance. The means for the experimental and control groups by smoking status are shown in Figure 4.

Finally, the male participants reported a greater likelihood of smoking ($M = 2.5, SD = 1.6$) than did the female participants ($M = 2.2, SD = 1.5$), $F(1, 135) = 8.01, p < .001$. This effect accounted for 5.6% of the variance. There was a significant Smoking Status x Levels interaction, $F(4, 270) = 2.50, p = .043$, which is shown in Figure 5. As can be seen in Figure 5, the occasional smokers were most likely to smoke when a cigarette was offered ($M = 3.4, SD = 0.9$) or must be requested ($M = 3.3, SD = 1.1$), and were least likely to smoke when a cigarette was pushed ($M = 3.1, SD = 1.1$). However, the levels variable had little effect on the regular smokers (must be requested, $M = 4.6, SD = 0.6$; offered, $M = 4.7, SD = 0.4$; pushed, $M = 4.7, SD = 0.5$) or the nonsmokers (must be requested, $M = 1.2, SD = 0.5$, offered; $M = 1.3, SD = 0.5$; pushed, $M = 1.3, SD = 0.4$). No other interactions were significant.

**Stages of Acquisition in Nonsmokers**

Additional analyses were done in which the nonsmokers were divided into those who reported no cigarette smoking while in college (62%) and those who reported smoking at least one cigarette while in college (38%). No significant differences related to this variable were found for ratings of the characters or for desire to smoke. However, those who had smoked while in college reported a greater likelihood of smoking in the smoking scenarios than did those who had not, $F(1, 83) = 20.01, p < .001$. Those who had ever had a cigarette while in college averaged 1.5 ($SD = 0.3$; on a 5-point scale) on the scenarios, while those who had never smoked in college averaged 1.1 ($SD = 0.5$) on the scenarios.
Figure 5. Self-rated likelihood of smoking in three levels of cigarette availability as a function of participants’ smoking status (1 = not likely, 5 = highly likely).

Discussion

Ratings of the Characters

Social learning theory suggests that people are more likely to model those whom they like, find attractive, and perceive as being similar to themselves. Popular actors and actresses such as those used in this study may serve as particularly effective models, especially if they portray attractive characters with whom the participants can identify. One goal of this study was to examine whether characters’ smoking behavior alters their perceived attractiveness.

We found that how smoking affects the perceived attractiveness of the characters depends on the gender of the character. The results indicate that both women and men apply a double standard when forming impressions of female and male smokers, rating female smokers less favorably than nonsmoking females, but not rating male smokers less favorably than nonsmoking males. Because male characters are portrayed more often smoking in popular films than are female characters (Hazan, Lipton, & Glantz, 1994; Terre, Drabman, & Speer, 1991), it is possible that this more frequent exposure to male models of smoking increases the acceptability of smoking by males; thus, the male characters are not rated as less attractive when smoking.

Although the tobacco industry has been very successful in recruiting female smokers, smoking has more often been associated with masculinity. For example, a recent advertisement for Winston cigarettes portrays a muscular young man wearing a tank top that exposes his tattoo of a shapely woman. Alongside the image appear the words, “You’re looking at my feminine side.” Although advertisements that target women emphasize qualities associated with femininity (e.g., thinness, beauty), many also emphasize qualities traditionally associated
with masculinity (e.g., freedom, independence). Perhaps female characters were rated less favorably when shown smoking, but male characters were not because smoking is viewed as a more male activity. Despite the double standard applied to ratings of male and female smokers, it is important to note that even the female smoking characters were still rated as attractive overall (Figure 2).

The same double standard seemed to apply to the “like-me” rating, with female characters who were shown smoking rated less “like me” than were female characters shown not smoking by both occasional smokers and nonsmokers. However, there were no significant differences found for male characters related to smoking for the “like-me” item. As would be predicted, female participants were more likely to rate the female characters as being “like me” than male characters, and male participants were more likely to rate the male characters as being “like me” than the female characters.

Another difference in the rating of the male characters, unrelated to smoking, was that the female raters (compared to the male raters) evaluated the male characters more positively on dimensions such as attractive, sexy, and desirable as a date. However, there were no gender differences in the ratings of the female characters. It is possible that the male raters were reluctant to rate other males positively on these items for fear that it might be taken as a reflection of their sexual preferences. However, female raters may not share that concern because both women and men are socialized to view attractiveness as an important dimension for women (Unger & Crawford, 1996).

**Desire for a Cigarette**

Viewing the movie clips in which the characters smoked increased the immediate desire to smoke for the male regular and occasional smokers, but not for the female regular or occasional smokers. The reason for this gender difference is unknown. It is possible that the increased desire shown by the male smokers was related to their heavier level of normal smoking.

**Likelihood of Future Smoking**

Viewing the movie clips in which the characters smoked increased the self-reported likelihood of future smoking by all participants. This increase accounted for 5.2% of the variance in likelihood of smoking, when the effect of current smoking status was taken into account. Research based on social learning theory indicates that we tend to model live or film characters that are viewed as having positive characteristics. The main characters in the movie scenes were rated positively on a number of dimensions. Although the female characters were rated more positively when they were not shown smoking, even the female characters shown smoking were rated positively on the scales measured, as shown in
Figures 2 and 3. Thus, the participants in the experimental group were exposed to attractive potential models who were shown smoking. All smoking scenes showed the characters smoking in social situations. There were two clips in which smoking occurred in a bar, two in which smoking occurred in a restaurant, one in which smoking occurred in an apartment while drinking with friends, and one in which the character smoked in a hotel hallway. Watching these scenes may also have altered the participants' scripts of such social situations to include smoking as a possible behavior.

The finding that viewing 18 min of film scenes in which main characters smoked significantly increased participants' self-reported likelihood of future smoking has important practical implications. The participants reported that they watched an average of seven films per month. Because about half of all main characters in current films are shown smoking (Stockwell & Glantz, 1997), the participants are exposed to attractive characters smoking in popular films on a regular basis. Thus, even a modest effect from each exposure could have a considerable long-term influence.

The Paradox of Decreased Ratings of Smokers and Greater Likelihood of Smoking

As discussed previously, viewing movie stars smoking may have caused smoking to be added to scripts of some social situations. There is a seeming paradox, however, in that participants did not rate smoking characters as more attractive, but viewing such characters increased their self-reported likelihood of smoking. This increase in likelihood to smoke following exposure to smoking characters was found for women and for men (although only the males indicated an increased immediate desire to smoke). If female characters are rated as less attractive when they smoke, then why would female viewers report a greater likelihood of engaging in this behavior following exposure to these characters?

It may be that the exposure to models of smoking behavior is important, regardless of the perceived characteristics of that model. Even though the female actress shown smoking is deemed less attractive overall, the exposure to female characters smoking in films may indicate an acceptability of her behavior, particularly in the contexts shown in the films.

Positive Versus Negative Portrayals of Smoking in Current Popular Films

Both social learning theory and research on cognitive scripting suggest that how smoking is portrayed in movies will moderate its effect, either increasing or decreasing the likelihood of smoking among viewers. Social learning theory predicts that portrayals of smoking by attractive characters in situations where the smoking is not punished will have the effect of increasing smoking. Scripting
theory suggests that the increase is likely to be greatest in situations such as those shown in the films. Chapman and Davis (1997), in their editorial on smoking in movies, gave examples of both positive and negative portrayals of smoking in recent films. They suggested that researchers need to understand how the screen portrayals are interpreted by viewers to predict the film’s positive or negative influence on attitudes about smoking.

The present experiment was designed to test the effects of smoking by positive characters while interacting in social situations. We used only films where a main character was depicted as smoking, and the actors and actresses selected were those rated as attractive and popular by a prior group of students. In most scenes shown in this experiment, smoking was shown as an incidental part of a social situation. In one somewhat different scene, the character portrayed by Julia Roberts used smoking to reduce stress. Chapman and Davis (1997) suggested that this scene might actually portray smoking in a negative manner because of the flaws in the character portrayed by Roberts. However, the viewer may not view her smoking behavior negatively. Although she is asked not to smoke by a hotel employee, she eventually receives empathy from him as he shares her cigarette. As a result, viewers may perceive that smoking was rewarded and not punished.

Validity of the Results

In order to mask the purpose of the study from the participants, two precautions were taken. First, two nonsmoking scenes were interspersed with the six smoking scenes for the smoking treatment group. Based on recent estimates of smoking in movies (Stockwell & Glantz, 1997), viewing a main character smoking in six of eight movie clips is probably not much different than the typical moviegoer might experience. Second, the participants were told that they were participating in two separate experiments: Experiment 1 on “Media Images and Attractiveness,” and Experiment 2 on “Situations in Which College Students Smoke.” In order to make this deception credible, each of the forms for the two experiments had a different faculty supervisor listed, a separate consent form, and a separate debriefing. None of the subjects indicated any suspicion that the two experiments were related in any way.3

3There was no manipulation check to determine whether participants had any knowledge that the two studies were related in the reported study. However, a subsequent study using a virtually identical procedure did include three postexperimental questions (What do you think was the purpose of Experiment 1 entitled “Media Impressions”?, What do you think was the purpose of Experiment 2 entitled “Situations in Which College Students Smoke”; and What did you learn from being a participant in these two experiments?) to assess whether the deception of “two separate experiments” was successful. Only 1 of the more than 400 participants identified the deception (Throckmorton-Belzer, 1999).
Another question concerns the validity of the participants’ ratings of likelihood of smoking in predicting their actual behavior. Kaplan and Simon (1990) reviewed circumstances in which persons were more or less accurate in predicting their own health-related behaviors. People were highly accurate when the questions were clear and direct and they were predicting behaviors with which they were familiar and had personally experienced. The scenarios used in the present study described situations that were likely to be familiar to the participants and were likely to have been personally experienced by them. The rating scales used to estimate probability of future smoking were clear and direct. Thus, participants should have been quite accurate in rating their likelihood of smoking. A recent meta-analysis by Ouelette and Wood (1998) also indicated that self-rated intentions are often the most accurate predictor of future behavior.

We hypothesized that the increase in smoking by young people in the United States can be attributed, at least in part, to the frequent and positively depicted cigarette smoking that occurs in popular films. The results of the present study support this hypothesis. Randomly selected participants who were exposed to film scenes where popular actors and actresses smoked cigarettes were more likely to report that they would smoke in a variety of situations than were the participants who were exposed to nonsmoking scenes from the same films. Male smokers also reported a stronger immediate urge to smoke after viewing the smoking scenes. While the effect size was modest, exposure to smoking in popular films is a frequent event for the participants, occurring several times a month on average for the participants in the study. Thus, the cumulative effect of viewing smoking in films could be quite substantial. These findings are consistent with studies of media influence in other areas, such as aggression.

Cigarette smoking is a preventable cause of death. The messages we receive about smoking through popular films often run counter to public-health messages about the dangers of smoking. The findings of the present study suggest that the subtle messages that moviegoers receive about smoking may be hazardous to their health.

References


