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Does Watching Smoking in Movies Promote Teenage Smoking?

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Abstract

Compared to adolescents with low exposure to smoking in movies, those with high exposure are about three times as likely to try smoking or become smokers. We have observed this effect in nationally representative samples using cross-sectional and longitudinal designs. This effect remains statistically significant after controlling for numerous other traditional risk factors, such as personality, parenting style, and sociodemographics. Indeed, the movie-smoking exposure effect on adolescent smoking initiation is greatest among those traditionally considered at lower risk for smoking, such as those low in sensation seeking and those whose parents do not smoke. In this article, we consider possible moderators and mediators of this important media effect as well as health-policy implications. The take-home message is that eliminating smoking in movies may prevent a substantial number of adolescents from smoking.

Keywords

smoking; adolescence; media influence; sensation seeking; movies

Nearly everyone knows that smoking is a leading cause of death in the world. Yet each day in the United States nearly 2,000 adolescents try their first cigarette, and many of them will go on to smoke regularly, which might ultimately contribute to an early demise. So, why do adolescents try smoking? It is clear that social influences, such as having friends or parents who smoke, play important roles in smoking initiation. Many children who try smoking, however, appear to have few such risk factors. An open question, then, is the extent to which other environmental factors encourage adolescent smoking. Over the past 10 years, our research group and others have documented the pernicious effects of movie portrayals of smoking on smoking uptake among children as young as 10 years old. In this article, we describe research using multiple methods and nationally representative samples showing that smoking in movies is an important promoter of adolescent smoking initiation.

Given the central role of movies in American culture, the potential for them to shape attitudes and influence behavior has long been of concern to psychologists (Anderson & Bushman, 2002). Most of the research to date has focused on media violence. But media also have a profound impact on the adolescent self-concept: They shape views of what is “cool”, what is attractive, and what is grown-up—all things that adolescents are trying to be. Indeed, casual observance at any local mall demonstrates that visual media affect how teenagers talk, how they dress, and how they behave. It seems plausible, then, that media exposure might affect other behaviors. Our central tenet is that the more children observe

smoking in movies—especially when smoking is portrayed by highly popular actors who serve as teen role models—the more likely they are to take up smoking.

EXPOSURE TO SMOKING IN MOVIES

Is it reasonable to suggest that movies contain a lot of smoking? About 70% of movies made in the United States today contain cigarette smoking. A variety of content analyses have established that the percentage of adults who smoke in movies is approximately 20 to 25% of characters, that smoking is rarely associated with negative health outcomes, and that smokers in movies are more affluent than the typical U.S. smoker. Yet on-screen smoking is only 1 to 2 minutes, on average, per film. At issue is the extent to which vulnerable children are exposed to this smoking. It could be argued that, since the majority of smoking occurs in movies aimed at older adolescents (i.e., PG-13 and R films), children under age 14 might have low exposure to movie smoking. However, the available evidence indicates that children in this age group are frequent viewers of movies that were never intended for young audiences—satellite television, cable movie channels, home videos, and DVDs greatly increasing children's access to the world depicted in motion pictures.

Only recently has the extent to which young children view movies been documented. One study showed widespread viewing of R movies by children aged 10 to 14, with some particularly violent movies (such as *Scream*) reportedly having been seen by nearly half of fifth graders in one large sample (Sargent, Heatheron, et al., 2002). Similarly, a recent nationally representative study (using random-digit dialing) of 6,522 adolescents found that an estimated one million American 10-year-olds reported having seen *Scary Movie*, in which a cheerleader is decapitated and her head is disposed of in a lost-and-found bin in the school locker room (Worth, Chambers, Nassau, Rakhra, & Sargent, 2008). Thus, children are seeing many movies (and a lot of violence)—but how much smoking do they see in these movies? Our studies have allowed us to answer this question by linking adolescents' responses to the movies they've watched to a content analysis that assessed smoking in some 1,000 movies (using carefully validated measures). The survey technique allows us to estimate the percentage of children who have viewed each of these movies in a nationally representative sample. Applying techniques from the marketing and advertising fields, we estimated that some 500 movies delivered nearly 14 billion smoking impressions to U.S. children ages 10 to 14 (Sargent, Tanski, & Gibson, 2007). In short, young children are exposed to a great deal of smoking from the movies they see.

Of course, the context in which smoking is portrayed is likely to affect the extent to which it encourages a child to smoke. Consider one such important factor: star smoking. In the study just described, some 30 actors delivered more than 50 million smoking impressions each. For instance, Mel Gibson's 21 episodes of smoking delivered more than 90 million smoking impressions because of the popularity of his films. In earlier studies, smoking status of the adolescents' favorite stars was related to the adolescent's attitude toward smoking (for never smokers) or their smoking status (Distefan, Pierce, & Gilpin, 2004; Tickle, Sargent, Dalton, Beach, & Heatheron, 2001).

MOVIE VIEWING AND ADOLESCENT SMOKING

Several studies have now examined the relation between the smoking adolescents see in movies (based on content-based estimates of exposure to movie smoking) and adolescent smoking. An initial study in 2001 found that there was a strong relation between exposure to movie smoking and smoking initiation among a large sample of northern New England adolescents (grades 5–8) and that this statistical association remained after controlling for numerous traditional risk factors for smoking (Sargent et al., 2001). Among the adolescents who had never tried a cigarette, exposure to movie smoking was associated with more

positive attitudes about tobacco use and the perception that most adults smoke. A follow-up study of these never-smoking adolescents found that exposure to movie smoking at baseline predicted smoking initiation 1 to 2 years later (Dalton et al., 2003). The follow-up study showed that the exposure preceded the behavior—an important requirement for making a causal argument. Indeed, nearly 20% of those in the highest-exposure quartile tried smoking compared to only 3% in the lowest-exposure quartile; and this relationship remained after controlling for smoking by family and friends, risk-taking propensity in adolescence, and maternal warmth and limit setting (as well as other sociodemographic variables). Interestingly, the effect was stronger among children of nonsmokers than it was among children of smokers, suggesting that the movie-exposure effect was potentiated by the absence of more traditional risk factors.

To generalize across racial or ethnic groups from different geographical regions, a random-digit-dial telephone longitudinal survey was conducted on 6,522 U.S. adolescents aged 10 to 14 years old (Sargent et al., 2005). This sample was representative of the entire population of American adolescents. Once again, adolescents with higher exposure to movie smoking were much more likely to try smoking, even after statistically controlling for sociodemographics, peer smoking, personality, parenting styles, and other social factors (see Fig. 1). The results of this study, under review, largely mirror the results obtained from the Northern New England sample. In this U.S. representative sample, it has been confirmed that exposure to smoking in movies is associated with established smoking (having smoked more than 100 cigarettes) among adolescents over a 2-year period (Sargent, Stoolmiller, et al., 2007). Another group of researchers studied a sample of North Carolina adolescents and found a longitudinal relationship between seeing PG-13 and R-rated movies and smoking initiation (Jackson, Brown, & L'Engle, 2007). Another study found that German adolescents have similar exposure to movie-smoking levels as U.S. teens (about 80% of the movies they see are produced and distributed by U.S. movie studios). German adolescents have higher smoking rates, in part because there are fewer restrictions on tobacco marketing and public smoking in that country. Despite the cultural differences in approach to tobacco control, German adolescents were shown to have much the same response to movie smoking as their American counterparts (Hanewinkel & Sargent, 2008). Thus, there is consistent and reliable evidence demonstrating a strong relationship between exposure to smoking in movies and adolescent smoking in longitudinal studies and across cultures.

Moderation Effects

To determine if certain groups of adolescents were more or less influenced by exposure to movie smoking in the studies mentioned, the researchers looked for moderation effects. In the New England longitudinal study, adolescents with low exposure to parent smoking were significantly more responsive to the movie effect (Dalton et al., 2003). This same pattern was observed in a longitudinal study of German adolescents, providing a cross-cultural validation of the moderation effect (Hanewinkel & Sargent, 2008). The effect suggests that adolescents exposed to real-world images of smokers are less responsive to the glamorized images delivered by movies. Similarly, adolescents low in sensation seeking were about 12 times more responsive to movie images of smoking, another negative moderation that undercuts the argument that kids who watch a lot of smoking are at high risk for smoking because of other unmeasured risk factors (Sargent, Stoolmiller, et al., 2007 see Fig. 2). Instead, it appears that the low-risk adolescents are most responsive to movie smoking.

Other researchers have found apparent moderation by race, with African American adolescents having little or no response to movie smoking despite the fact that their exposure is 20 to 30% higher than that of Caucasians (Jackson et al., 2007). The fact that African American adolescents are not responsive may explain, in part, why they have such low rates of smoking during adolescence compared with Caucasian adolescents.

Mediation Variables

Current research is beginning to explore mediating variables that may give insight into the mechanisms through which movies affect behavior. Postulated mediators include attitudes and cognitions, as well as other factors such as smoking by peers. A longitudinal structural model that included as endogenous variables identification as a smoker, normative beliefs about smoking, and positive expectancies about smoking was developed (Tickle, Hull, Sargent, Dalton, & Heatherton, 2006); paths from movie-smoking exposure to adolescent smoking were found through identification as a smoker and through positive expectancies, and we have replicated this finding in our more recent longitudinal work (Wills, Sargent, Stoolmiller, & Gibbons, 2007; Wills, Sargent, Stoolmiller, Gibbons, & Gerrard, 2008). It seems theoretically plausible that continued exposure to smoking by movie stars would increase positive expectancies over time, and this fits with the finding of a strong association between seeing movie smoking and more favorable attitudes toward smoking among those who have never smoked (Sargent, Dalton, et al., 2002).

Another interesting mediational pathway involves smoking by peers. Adolescents watch movies with their friends, and therefore they are exposed to movies in groups, not only on their own. Seeing actors smoke could affect group norms about smoking. One adolescent in the peer group with a slightly lower threshold for trying smoking might be pushed into trying smoking and become the proximal influence for other members of the peer group. In this scenario, one might see a mediational pathway through increases in adolescents' perceptions of the number of their peers that smoke, and this is exactly what was found (Wills et al., 2007, 2008). However, at this point it is not clear whether this mediational path is due to more peers smoking within stable peer groups or to changes in peer affiliations prompted by exposure to movie smoking.

EXPERIMENTAL STUDIES

Several studies have examined the effect of movies or movie clips with smoking on attitudes and cognitions in adolescents and young adults. The results indicate that even brief exposures to movie smoking can influence beliefs and cognitions about smoking among actors, smoking in other people, and also personal prosmoking intentions. Pechman and Shih (1999) showed adolescents scenes from the movie *Reality Bites*; the control group saw the same film, but with smoking scenes edited out. Adolescents who saw smoking scenes attributed higher social status to adolescent smokers generally and also reported increased personal intentions to smoke. Interestingly, the effect of showing the entire movie on personal intentions was blunted by showing an antismoking advertisement prior to viewing the movie. These findings need to be replicated, but they provide the basis for urging movie makers to include antismoking ads on DVDs for movies that contain smoking.

Dal Cin and colleagues (Dal Cin, Gibson, Zanna, Shumate, & Fong, 2007) recently published a theoretically important manuscript based on *transportation theory*, the idea that viewers are affected by stories because of their identification with the storyline and characters. They looked at implicit associations between self and smoking as a function of identification with a smoking protagonist and found that greater identification predicted stronger associations between the self and smoking (for both smokers and nonsmokers) and increased intentions to smoke (among the smokers). In addition, stronger implicit associations between the self and smoking uniquely predicted increases in smokers' intentions to smoke. Taken together, the experimental research published to date adds support to epidemiologic studies.

PUBLIC HEALTH IMPLICATIONS

The findings summarized above have important public health implications. First, if movies really are a causal element in youth smoking, then movie smoking should be monitored just as we would monitor any environmental exposure that adversely affects health. We partner with the American Legacy Foundation to publish annual reports on smoking in the top 100 box-office hits released each year (see Legacy First Look Reports 16 and 18 at <http://www.americanlegacy.org/publications.aspx>). These reports provide a validated metric to determine whether or not progress is being made in reducing depictions of smoking by the entertainment industry. Our most recent publications show a significant decline in depictions of character smoking, especially for R-rated movies (see Recommended Reading).

Another issue is the identification and promotion of policy measures that could reduce adolescent exposure. Various public health advocacy groups (e.g., Smoke Free Movies, <http://smokefreemovies.ucsf.edu/>) have encouraged the movie industry to take voluntary actions that would reduce exposure, such as giving an R rating to movies with smoking, declaring that no funds have been provided by the tobacco industry, requiring antismoking advertisements to run before any film with any tobacco presence, and no longer showing tobacco brands in any movie scenes. Several individual movie studios have implemented internal guidelines designed to limit smoking depictions in movies aimed at youth, although most have not.

Another group promoting policies to reduce smoking in movies is the National Association of Attorneys General (NAAG). NAAG is charged with enforcing the Master Settlement Agreement between the State Attorneys General and the tobacco industry that contains a ban on paying for brand placement in movies by any of the major tobacco companies. Since this policy was adopted, tobacco brand placement in movies dropped to almost nil. More recently, and based in part on our research, NAAG has asked the major movie studios to put an antismoking ad in any DVD with smoking. This suggestion has been taken up by the Weinstein Brothers, a production company that now puts Legacy Foundation TruthR ads in all DVDs with smoking. It has been gratifying to us to see the research findings so quickly translated into policy initiatives to protect children from movie smoking.

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Recommended Reading

- Sargent JD. Smoking in movies: Impact on adolescent smoking. *Adolescent Medicine*. 2005; 16:345–370. A readable detailed overview of the research described in this report.
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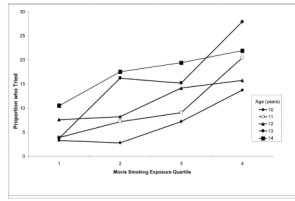


Fig. 1. Proportion of adolescents aged 10 to 14 who tried smoking as a function of exposure to movie smoking (amount of exposure broken down by quartile). The sample consisted of 4,538 U.S. adolescents who were never smokers at baseline and who were surveyed 16 months later on their tobacco use (unpublished data).

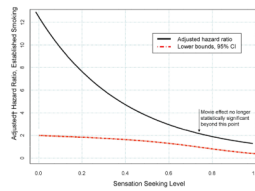


Fig. 2. Effect of sensation seeking on the effect of exposure to movie smoking. The black line reflects the established smoking hazard ratio (risk of becoming an established smoker during the study) as sensation seeking varies. Sensation seeking is scaled so that 0 equals the 5th percentile and 1 equals the 95th percentile for the distribution. The hazard ratio is adjusted for other media variables (movie-viewing venues, movies viewed in the past week, movies viewed with parents), social and other environmental influences (friend smoking, sibling smoking, parent smoking, poor school performance, parental style, extracurricular activities), and characteristics of the adolescent (age, sex, parent education, race, tried smoking at baseline, and rebelliousness). (adapted from Sargent, Stoolmiller, et al., 2007).