Cigarette Smoking and Perception of a Movie Character in a Film Trailer

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Objective: To study the effects of smoking in a film trailer.

Design: Experimental study.

Setting: Ten secondary schools in Northern Germany.

Participants: A sample of 1051 adolescents with a mean (SD) age of 14.2 (1.8) years.

Main Exposures: Participants were randomized to view a 42-second film trailer in which the attractive female character either smoked for about 3 seconds or did not smoke.

Main Outcome Measures: Perception of the character was measured via an 8-item semantic differential scale. Each item consisted of a polar-opposite pair (eg, “sexy/unsexy”) divided on a 7-point scale. Responses to individual items were summed and averaged. This scale was named “attractiveness.” The Cronbach α for the attractiveness rating was 0.85.

Results: Multilevel mixed-effects linear regression was used to test the effect of smoking in a film trailer. Smoking in the film trailer did not reach significance in the linear regression model (z = 0.73; P = .47). Smoking status of the recipient (z = 3.81; P < .001) and the interaction between smoking in the film trailer and smoking status of the recipient (z = 2.21; P = .03) both reached statistical significance. Ever smokers and never smokers did not differ in their perception of the female character in the nonsmoking film trailer. In the smoking film trailer, ever smokers judged the character significantly more attractive than never smokers.

Conclusion: Even incidental smoking in a very short film trailer might strengthen the attractiveness of smokers in youth who have already tried their first cigarettes.

during a 1-year observational period. To my knowledge, the effects of such an exposure have not been studied. The experimental data reported in this article are the first to show the effects that smoking in a film trailer might have on youth.

METHODS

OVERALL DESIGN

The study design was a 2 (character smoking in a film trailer vs nonsmoking) × 2 (smoking status of the subjects) between-subjects experimental design with random assignment of groups (school classes) to film condition. The second factor (smoking status of the participants) was introduced into the design because previous studies have shown that smoking in movies could affect adolescent never smokers as well as teens who have already tried smoking.

STIMULUS MATERIAL

To assess the impact of smoking images in a film trailer, Norddeutscher Rundfunk (NDR) (Northern German Broadcast), one of the national public television channels in Germany, produced 2 versions of a film trailer, which both lasted 42 seconds. The trailer consisted of 6 scenes. In one of the scenes, the attractive, 34-year-old, well-known German female actor (Meret Becker, http://www.meretbecker.de/) smoked or did not smoke for about 3 seconds. Within the smoking scene, the actor was alone and relaxed. No adverse effects of smoking were shown. With the exception of this one scene, there was no difference between the 2 trailers. The whole format of the trailer was identical to the format of a film trailer frequently shown on NDR.

PARTICIPANTS

Participants were recruited from 45 classes from 10 secondary schools in Schleswig-Holstein, a state of Germany. Parental written permission and student assent were required for participation in the survey. The study was approved by the Ministry of Cultural Affairs of the Bundesland Schleswig-Holstein.

The sample consisted of 1051 pupils, 490 boys (47%) and 559 girls (53%) (there were 2 missing sex values) with a mean (SD) age of 14.2 (1.8) years (median, 14 years; range, 10-18 years). The majority of 620 pupils (59%) never tried smoking.

PROCEDURE

The experiment was conducted by trained research staff who also carried out the data collection in the 10 schools. The 45 classes were randomly assigned to 1 of the 2 conditions (smoking vs nonsmoking of the main character). Randomization was stratified by grade. The pupils were guided classwise to one media room in the school, in which the trailer was projected via a laptop and a projector. After the pupils entered the media room, they watched the trailer. Then the questionnaires were distributed by the research staff. The survey was anonymous, and the questionnaires were collected by the research staff, placed in an envelope, and sealed in front of the class.

MEASURES

Demographics included age (“How old are you?”) and sex (“Are you a girl or a boy?”) of the pupils. Smoking status of the subjects was determined by asking the question “How many cigarettes have you smoked in your life?” The response “none” was categorized as “never smoked” and all other responses (just a few puffs, 1-19 cigarettes, 20-100 cigarettes, >100 cigarettes), as “ever smoked.”

SEMANTIC DIFFERENTIAL SCALE

To measure the perception of the character, a semantic differential scale was used. Semantic differential scales are frequently used to measure explicit attitudes and opinions. Each item consisted of a polar-opposite pair divided on a 7-point scale. The pairs were “boring/exciting”; “well/bad”; “friendly/unfriendly”; “social/antisocial”; “beautiful/ugly”; “cool/uncool”; “young/old”; and “sexy/unsexy.” Items were derived from previous research on perceptions of smoking in films.

For the analysis, items were (re)coded to indicate that higher values reflect a more positive view of the character. Responses to individual items were summed up and averaged. This scale was named “attractiveness.” The Cronbach α for the attractiveness rating was 0.85.

CONTROLLING FOR CONFOUNDS

A number of covariates that could confound the relation between exposure to smoking in a film trailer and the perception of the character were controlled. Sensation seeking and rebelliousness of the recipients were measured with the following 12 items: “I like to do scary things”; “I get bored being with the same friends all the time”; “I like to do dangerous things”; “I often think there is nothing to do”; “I like to listen to loud music”; “I get in trouble in school”; “I argue a lot with other kids”; “I do things my parents wouldn’t want me to do”; “I do what my teachers tell me to do”; “I sometimes take things that don’t belong to me”; “I argue with my teachers”; and “I like to break the rules.” Response categories for these items were “not like me,” “sort of like me,” “a lot like me,” and “just like me.” For the analysis, responses to individual items measuring students’ personality were summed, such that higher scores signified more of each characteristic (Cronbach α of the 12-item index=0.76). In addition, social influences toward smoking (mother and father smoking, sibling smoking, friend smoking) were assessed.

STATISTICAL ANALYSIS

Multilevel mixed-effects linear regression, implemented in Stata 10.0 (StataCorp, College Station, Texas), was used to test the effect of smoking in a film trailer. In the models, the outcome variable (i.e., the perception of the character) was regressed on the experimental conditions “smoking in the film trailer” (smoking vs nonsmoking), “smoking status of the recipient” (never smoked vs ever smoked), and the interaction between these 2 variables with a random effect for class, since students were nested in classes. Sex, age, sensation seeking, and rebelliousness and friend, sibling, and parent smoking served as covariates.

RESULTS

Smoking in the film trailer did not reach significance in the linear regression model (β=0.73; P=.47). Smoking status of the recipient (β=3.81; P<.001) and the interaction between smoking in the film trailer and smoking status of the recipient (β=2.21; P=.03) both reached statistical significance.

Adjusted means of the outcome variable stratified by experimental conditions are shown in the Figure. Ever
smokers and never smokers did not differ in the perception of the female character in the nonsmoking film trailer. In the smoking film trailer, ever smokers judged the character significantly more positive than never smokers.

Data from this experimental study indicate that incidental smoking of only 3 seconds in a short film trailer of 42 seconds could have an effect on the perception of the female character. A large sample of young German adolescents judged the character quite differently depending on their own smoking experience. Never smokers and ever smokers did not differ in their perception of a non-smoking attractive female actor, but ever smokers judged the same character more positively when the character smoked compared with never smokers.

When depicted in movies, smoking sends a powerful and enticing message to the adolescent viewer. Movie directors and actors use smoking to project character traits typically seen in tobacco advertising: toughness, rebelliousness, and sexiness. Results from focus groups and surveys indicate that these stereotype messages are well received by teens.

A recent published study indicates that a sample of more than 500 contemporary box-office hits delivered billions of smoking impressions to American youth during a period when they are susceptible to social influences to smoke. Not surprisingly, previous literature showed consistently that exposure to smoking on-screen increases the odds of smoking in children, adolescents, and young adults. These studies show in general a clear dose–response relationship between exposure to movie smoking and smoking initiation. Compared with billions of smoking impressions that American and German teens are exposed to, the exposure to a 3-second smoking scene is marginal. Therefore, one could have expected that this exposure might not have an effect at all. The present investigation contradicts this expectation by showing that even very brief exposures in trailers could have different effects on smokers and nonsmokers.

How can these results be explained? One possibility is the Festinger theory of cognitive dissonance. According to this theory, the possession of inconsistent cognitions creates psychological discomfort, which motivates people to alter their cognitions (beliefs, attitudes) and/or behaviors to restore consistency. The emotional state of dissonance may occur when there is inconsistency between 2 beliefs or between a belief and a behavior. The individual will try to resolve the unpleasant dissonance by changing the belief, changing the action, or “rationalizing” the action. Few, if any, German adolescents could have avoided exposure to information designed to persuade them that smoking is harmful. Such exposure, dissonance theory argues, creates an unpleasant tension for those adolescents who have already tried smoking, which might be relieved through selective information processing. A smoking film character might therefore be perceived as “sexy,” “cool,” and “exciting” by teens who have already smoked. According to the theory of cognitive dissonance, the unpleasant dissonance has been resolved by changing their cognitions. In contrast, those adolescents who have never smoked should not have built up cognitive dissonance. Therefore, they do not have any motivation to resolve dissonance.

Theories describing attitude and persuasion have been applied to explain the process of smoking initiation, reduction, continuation, and progression. Recent research on the theory of planned behavior, which includes prosmoking attitudes, perceived social norms regarding smoking, and self-efficacy to resist smoking, reveals that these cognitions may play a relevant role in progression in smoking after experimentation or recent onset. The current research reveals that even incidental smoking in a film trailer could have an effect on attitudes in those adolescents after experimenting with smoking. By facilitating prosmoking attitudes, smoking in movie trailers may contribute to adolescent smoking progression.

The study has some strengths and weaknesses that should be taken into account. The strengths are the experimental design, the professional stimulus material, and the high number of participants in the study. Nevertheless, weaknesses are that teens entered the study as never or ever smokers and the regional sample drawn does not allow generalizing the results to the whole population of German adolescents.

Taken together, this experimental study presents data suggesting that even incidental smoking in a very short trailer might strengthen the attractiveness of smokers in youth who have already tried their first cigarettes. Future experimental studies should also address possible sex effects; thus, the stimulus material should consist of male and female smoking and nonsmoking characters.

Given the evidence that smoking in movies strongly impacts childhood and early smoking initiation in the United States and Germany, leading US advocates promote an R rating (no cinema admission to persons younger than 17 years without a parent or guardian) for all movies portraying smoking. The expectation is that an R rating would substantially reduce exposure and subsequent adolescent smoking initiation. This study sug-

**Figure.** Adjusted means for the attractiveness rating of the female character stratified by experimental condition and smoking status of the recipient. Means are adjusted for sex, age, sensation seeking, and rebelliousness and friend, sibling, and parent smoking. Higher values reflect a higher attractiveness rating of the character.
suggests that health advocates should not only focus on motion pictures. Instead, policies to prevent youth from being exposed to tobacco images should ultimately include film trailers and all relevant television programming.

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