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Smoking in Hollywood movies: Impact on teen smoking with special reference to German adolescents

Palenie tytoniu w filmach z Hollywood:
Wpływ na palenie wśród nastolatków ze szczególnym
odniesieniem do niemieckich nastolatków

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This paper summarizes studies that have linked exposure to movie smoking and smoking initiation among adolescents. Much of the research linking exposure to smoking to movies with adolescent smoking comes from studies of U.S. children and their exposure to smoking in Hollywood movies. Cross-sectional and longitudinal studies have assessed such exposure and have found a strong, independent association with smoking onset. A first study conducted in Germany reveals that smoking in internationally distributed movies is a risk factor for ever and current smoking among European adolescents, too. It is concluded that limiting exposure of young adolescents to movie smoking could have important world-wide public health implications.

W pracy podsumowano badania nad związkiem pomiędzy paleniem tytoniu na filmach a wiekiem inicjacji tytoniowej wśród nastolatków. Większość badań przedstawiających związek pomiędzy narażeniem na dym tytoniowy na filmach i paleniem wśród nastolatków pochodzi z badań na dzieciach amerykańskich i ich narażenia na dym na filmach z Hollywood. Badania przekrojowe i obserwacyjne wykazały takie narażenie i jego silny i niezależny związek z rozpoczynaniem palenia. Pierwsze przeprowadzone w Niemczech badania ujawniły, że palenie na filmach wyświetlanych w wielu krajach świata jest również czynnikiem ryzyka dla palenia tytoniu wśród nastolatków w Europie zarówno obecnie, jak i kiedykolwiek. Pozwala to na wyciągnięcie wniosku, że ograniczenie wpływu filmów, w których pokazuje się palenie tytoniu, na młodych ludzi może mieć szerokie ogólnoswiatowe konsekwencje zdrowotne.

Introduction

Substance abuse remains one of the major threats to adolescent health in Western cultures. Despite recent prevalence declines in many countries, smoking is the single greatest preventable cause of mortality, and is responsible for some four million deaths worldwide each year [16]. Current global patterns of youth smoking suggest little abatement of cigarette use [40].

One way of controlling the smoking epidemic is to prevent youth from taking up the behaviour. The onset of smoking typically occurs during childhood or adolescence [30]. Smoking is a behavior acquired in large part through observation and imitation [2]. Children imitate the behavior of role models, especially those they admire or with whom they identify, and if the model is reinforced, and the assimilation of substance use behavioral scripts begins prior to school entry [7]. Besides the family and the peers, media play an important social-influence role in contemporary Western cultures; media not only depict modern societal norms but also help define them [37]. Media messages are endemic in our society through

exposure to television and radio, movies, outdoor and point of sale advertising, via newspapers and magazines, on the internet, on video and computer games, on music lyrics and videos, and through books, brochures and posters [39].

A number of child health organizations recognize the importance of media in the lives of our children; for example, the American Academy of Pediatrics recognizes that exposure to mass media presents both health risks and benefits for children and adolescents [3,5]. Movies are a particularly salient type of media when it comes to substance use. Previous studies generally agree that (1) smoking is depicted in most movies [9,14,15,20-22,27,36,42], (2) smoking in movies increases as Motion Picture Association of America rating increases from G to R [9,28,29], and (3) smoking in movies is rarely depicted in the context of negative health outcomes [9,15].

Much of the research linking exposure to smoking to movies with adolescent smoking comes from studies of U.S. children and their exposure to smoking in Hollywood movies. Cross-sectional [32,33] and longi-

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tudinal [8,24,34] studies have assessed such exposure and have found a strong, independent association with smoking onset. Other studies in U.S. adolescents have linked smoking onset with smoking status of the adolescent's favourite Hollywood star [11, 12,38]. However, Hollywood movies are distributed world wide, with over half of the box office dollars coming from outside the U.S [35].

Exposure to smoking in Hollywood movies and youth smoking in Germany.

A first study on the effects of movies smoking on European adolescents was recently published [23]. It is described in more detail as an example how such research is conducted.

Methods

In October/November 2005 we carried out a cross sectional survey of 5,586 schoolchildren aged 10-17 with a mean of 12.8 (SD=1.2) years from randomly selected secondary schools in Schleswig-Holstein, Germany.

Ever tried smoking was determined by asking the question „How many cigarettes have you smoked in your life?” The response “none” was categorized „never smoked” and all other responses (just a few puffs, 1-19 cigarettes, 20-100 cigarettes, >100 cigarettes) as „tried smoking”. Current smoking was assessed by asking “How often do you smoke at present?” To which respondents could answer “I don't smoke”, “less than once a month”, “at least once a month, but not weekly”, “at least once a week, but not daily”, or “every day”. Those who reported smoking at least monthly are defined as current smokers.

Adolescents' exposure to smoking in movies was assessed by asking each student to indicate which film he or she had seen from a unique list of 50 movies. These 50 movies were randomly selected for each individual survey from a sample of 398 popular contemporary movies released between 1994 and 2004 in German cinemas. The 398 movies included all internationally distributed movies from the top 25 German box-office hits every year from 1994 to 2001 (n=172) and the top 100 German box office hits per year from 2002 to 2004 (n=226). This represents 80% of the German box office hits in these years. The majority (388) of the 398 movies (98%) were produced and/or distributed internationally by American companies.

Trained coders counted the number of occurrences of smoking in each movie using methods previously described [9]. A smoking occurrence was counted whenever a major or minor character handled or used tobacco in a scene or when tobacco use was depicted in the background (eg, “extras” smoking in a bar scene). Occurrences were counted irrespective of the scene's duration or how many times the tobacco product appeared during the scene.

Results

The prevalence of ever tried smoking was 0.41, and the current smoking prevalence was 0.12. The smoothed lowest curves [13] in figure 1 illustrate a positive curvilinear association between exposure to movie smoking and adolescent ever smoking as well as current smoking. For ever smoking, the prevalence rises from between 0.1 and 0.2 for low-exposure adolescents to include almost all of the high-exposure adolescents, for whom the prevalence is upwards of 0.7. Similarly, whereas the proportion of current smokers among low-exposure adolescents is less than 0.05, the proportion of current smokers in the high exposure range exceeds 0.35 (Figure 1).

The sample quartile (Q) of movie smoking exposure was significantly associated

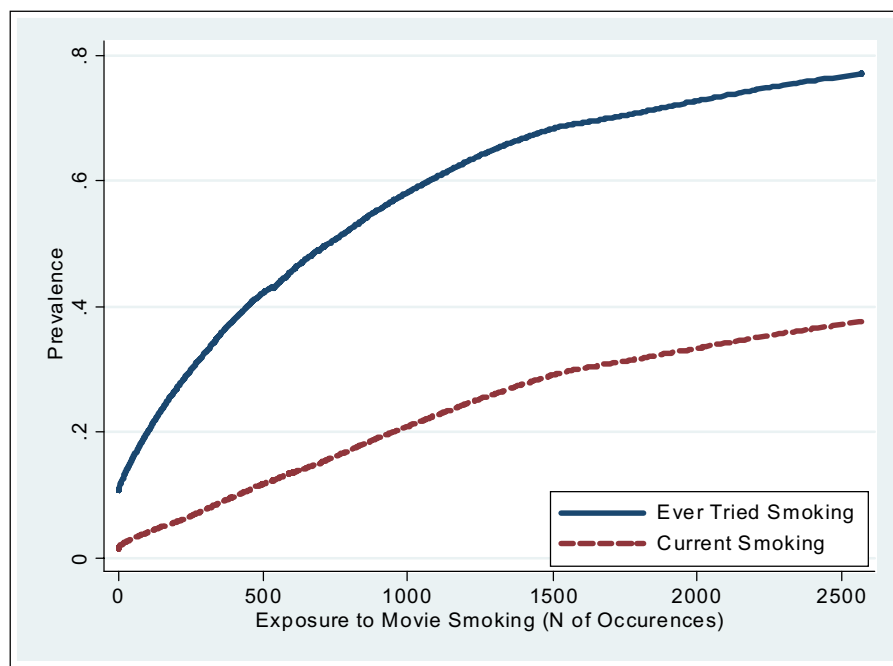


Figure 1. Crude association between exposure to movie smoking and adolescent smoking. *Am. J. Prev. Med.* 2007, 32(6), 466-473.

Przybliżony związek pomiędzy narażeniem na palenie w filmach a palenie nastolatków. *Am. J. Prev. Med.* 2007, 32(6), 466-473.

with the prevalence of smoking initiation: 0.17 of adolescents in Q1 had tried smoking; 0.35 in Q2; 0.47 in Q3; and 0.64 in Q4. After controlling for socio-demographics, parent/friend/sibling smoking, school performance, personality characteristics, TV consumption, receptivity to tobacco marketing and parenting style, the adjusted odds ratios for having tried smoking were 1.7 (95% confidence interval [CI]: 1.4, 2.1) for Q2, 1.8 (95% CI: 1.5, 2.3) for Q3, and 2.2 (95% CI: 1.8, 2.8) for Q4 compared with adolescents in Q1. The adjusted odds ratios for current smoking were 1.4 (95% CI: 0.9, 2.2) for Q2, 1.7 (95% CI: 1.1, 2.6) for Q3, and 2.0 (95% CI: 1.3, 3.1) for Q4 compared with adolescents in Q1.

Discussion

To our knowledge, this study is the first to examine the association between exposure to smoking in internationally marketed (primarily Hollywood) movies and adolescent smoking in a European sample of early teens, applying survey methods assessing exposure that have thus far only been applied to U.S. adolescents. The association with ever smoking is remarkably similar to the findings among U.S. adolescents [32,33], with a similar dose-response curve [31], and with adjusted odds of ever smoking being 1.7-2.2 times greater for adolescents with higher exposure. Moreover, due to the higher prevalence of tobacco use in Germany compared with U.S. adolescents, this study assessed, for the first time, the relation between movie smoking exposure and current smoking. The form of the dose response curve for current smoking is similar to the curve for ever smoking, and the association remains statistically significant despite adjustment for a number of possible confounding influences, suggesting that

exposure to Hollywood movie smoking is also linked with more advanced adolescent smoking outcomes more closely associated with symptoms of nicotine addiction [25].

It should be noted, that a major limitation of the study goes with the design. Due to the cross sectional design the temporal sequence of events could not be determined. Thus, prospective studies are needed to show whether seeing tobacco use in films precedes smoking also in other countries than the US.

Policy Implications

Adolescents initiate smoking for social reasons [6], and the social risk factors include influences such as parent [1] and friend smoking [26]. Tobacco marketing is also linked with youth smoking [10], and this serves as the basis for controls on smoking marketing contained in the WHO Framework Convention on Tobacco Control, in which Article 13 recognizes that a comprehensive ban on tobacco marketing would reduce consumption. However, a comprehensive ban on tobacco marketing would not limit other mass media venues from projecting favourable images of smoking, such as smoking contained in motion pictures, increasingly recognized as an important contributor to the smoking epidemic [4,31].

The described German study concluded, after controlling for other factors, that teens in North Germany most exposed to the smoking in U.S. films were more than twice as likely to have tried smoking than those least exposed [23]. Given the evidence that smoking in movies strongly impacts childhood and early smoking initiation in the US and abroad (Germany), leading US advocates promote an R-rating (no cinema admission to persons under the age of 17 without a parent or guardian) of all movies portraying smoking [17-19,41]. A similar discussion on

the best ways to prevent youth from exposure to smoking occurrences in European cinemas and TV programmes is warranted.

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