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Smoking in Polish movies: Prevalence and adolescent exposure

Palenie w filmach. Rozpowszechnienie zjawiska i narażenie młodzieży

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Following the accumulation of evidence that exposure to images of smoking in movies is associated with smoking in adolescents, the World Health Organisation has called for reductions in youth exposure to movies that portray smoking. However, up to now, no country has adopted measures to reduce exposure to movie smoking. This might be due to a lack of awareness among policy makers or a lack of empirical evidence linking movie smoking to youth smoking in a specific country. We present data of 4105 Polish students that participated in a large European study on amount and effects of smoking in movies. Within this study we assessed the quantity of smoking ("tobacco occurrences") in the 250 most successful movies in Polish theatres in the years 2004 to 2009 and asked the students which of these movies they have seen. The majority of the 250 Polish box-office hits were produced (44%) or co-produced (34%) in the United States, 11% were domestic productions, 10% were productions from other EU countries. Content coders from Poland, Germany and the US counted a total of 5736 tobacco occurrences in the Polish box-office hits. Overall, 156 of the 250 movies (62.4%) contained at least one tobacco occurrence with a mean of 37 occurrences in movies with smoking. Tobacco occurrences were more likely found in domestic productions, with 79% of the domestic productions containing at least one smoking scene compared to 58% in the Hollywood sample. The 11% domestic productions made up 19% of the total tobacco occurrences with a mean of 49 tobacco occurrences per movie that contained smoking. On average, each student had seen 46% of the 250 movies and had a mean exposure of 2046 tobacco occurrences. Compared to five other countries (Germany, Iceland, Italy, The Netherlands, and UK) Polish adolescents had the highest exposure to movie smoking of which 27% was obtained from domestic movies. Potential explanations for the relatively higher exposure of Polish adolescents

W konsekwencji nagromadzenia dowodów potwierdzających związek ekspozycji na widok palenia w filmach z paleniem przez młodzież, Światowa Organizacja Zdrowia zaapelowała o ograniczenie narażenia nastolatków na filmy, które przedstawiają zjawisko palenia. Jednakże, jak dotąd żaden kraj nie podjął kroków zmierzających w tym kierunku. Może to być spowodowane brakiem świadomości wśród decydentów lub brakiem dowodów doświadczalnych łączących palenie w filmach z paleniem przez młodych ludzi w poszczególnych krajach. Prezentujemy dane 4105 polskich uczniów, którzy wzięli udział w dużym europejskim badaniu dotyczącym ilości i efektów palenia w filmach. W badaniu oceniono ilość palenia („sceny palenia") w 250 filmach, które odniosły największy sukces w polskich kinach, w latach 2004-2009 i poproszono uczniów, by określili, które z tych filmów obejrzeli. Większość z 250 filmów z polskiej listy hitów box-office została wyprodukowana (44%) lub powstała przy współudziale Stanów Zjednoczonych (34%), 11% to produkcje krajowe, a 10% stanowiły produkcje pozostałych państw Unii Europejskiej. Osoby odpowiedzialne za kodowanie treści filmów pochodzących z Polski, Niemiec i Stanów Zjednoczonych zliczyły 5736 scen z użyciem tytoniu w hitach z polskiej listy box-office. Z całkowitej ilości 250 filmów 156 (62,4%) zawierało przynajmniej jedną scenę tytoniową, ze średnią ilością 37 scen wśród filmów przedstawiających zjawisko palenia. Sceny palenia tytoniu można było zaobserwować częściej w filmach rodzimej produkcji - w 79% filmów wyprodukowanych w Polsce znalazła się przynajmniej jedna scena palenia, w porównaniu do 58% filmów produkcji amerykańskiej. W wymienionych 11% krajowych produkcji pojawiło się 19% wszystkich scen z użyciem tytoniu, ze średnią 49 zdarzeń tytoniowych przypadających na film przedstawiający zjawisko palenia. Przeciętny uczeń obejrzał 46% z 250 filmów i był narażony na widok 2046 scen z użyciem tytoniu. W porównaniu z pozostałymi pię-

are (1) a high movie exposure in general, (2) higher exposure to domestic compared to US productions, (3) higher smoking rates in domestic productions, and (4) low impact of the age ratings assigned to movies in Poland. Results are discussed in the light of the positive relationship between exposure to movie smoking and smoking of Polish adolescents.

cioma państwami (Niemcy, Islandia, Włochy, Holandia i Wielka Brytania) polska młodzież była najbardziej narażona na sceny palenia w filmach, których 27% pochodziło z filmów wyprodukowanych w Polsce. Stosunkowo większe narażenie polskich nastolatków mogą tłumaczyć fakty: (1) ogólnie większa ekspozycja na filmy, (2) większa ekspozycja na filmy polskie w porównaniu do amerykańskich, (3) wyższy odsetek palenia w rodzimych produkcjach oraz (4) słaby wpływ polskiego systemu klasyfikacji filmów pod względem przeznaczenia wiekowego. Wyniki zostaną omówione w kontekście istniejącego związku pomiędzy narażeniem na palenie w filmach a nałogiem palenia wśród młodzieży w Polsce.

Introduction

Smoking remains the single greatest preventable cause of mortality in Europe [5,8]. Adolescents initiate smoking for social reasons, and social risk factors include influences such as parent and friend smoking, but also a number of other factors such as tobacco marketing and media exposure [2]. For example, recently published longitudinal research suggests that exposure to smoking in movies accounts for as much as half of adolescent smoking initiation in the US [1,3,4,6,7,11,13-16]. A review of the current research by the U.S. National Cancer Institute stated that 'the total weight of evidence from cross-sectional, longitudinal, and experimental studies indicates a causal relationship between exposure to movie smoking depictions and youth smoking initiation' (p.357) [10]. Concerns over the effects of smoking in the movies on youth smoking uptake has led the World Health Organisation (WHO) to call for reductions in youth exposure to movies that portray smoking and is also one of the key recommendation in the implementation guidelines of Article 13 of the WHO Framework Convention on Tobacco Control (FCTC) [17].

However, up to now, no country has adopted measures to reduce exposure to movie smoking. This might be due to a lack of awareness among policy makers or a lack of empirical evidence linking movie smoking to youth smoking in a specific country. This issue is now addressed by a large EU-funded six-country study (Germany, Iceland, Italy, Poland, The Netherlands, and United Kingdom) surveying more than 16 thousand adolescents [9]. First results of this study revealed that the association between exposure to movie smoking and youth smoking is robust and occurs independently of cultural contexts, e.g., prevalence of smoking, tobacco control policies, attitudes towards smoking in the population, culture-specific parental and peer influences. A positive significant relation between exposure to movie smoking and adolescent ever smoking was also found for Poland [9].

The present paper analyzes the frequency of smoking in movies in the most successful movies shown in Polish theatres in the years 2004-2009 and estimates the exposure to movie smoking in Polish adolescents.

Methods

Study sample and procedure

The Polish data were assessed in the Wielkopolska region from April-June 2010. Overall, a total of 253 schools (all "Gymnasium") were invited to participate in the study. Thirty-five schools (14%) with 5078 eligible students finally agreed to participate. Three-hundred ninety-six students (8%) could not be included in the study due to missing parental consent, 527 students (10%) were absent on the day of assessment and could not be reached by mail, 50 students (1%) refused to participate, resulting in a final sample of 4105 students (80.8% response rate).

Data were collected through self-completion questionnaires, administered by trained research staff of the Laboratory of Environmental Research in Poznan. Each completed questionnaire was placed in an envelope and sealed in front of the class. Students were assured that their individual data would not be seen by parents or school administrators. Study implementation was approved by the ethical board of the Medical University of Poznan.

Measure of exposure to movie smoking

Exposure to smoking in movies was assessed using a variable data survey method developed by researchers of Dartmouth Medical School [12]. Researchers of the University of Poznan provided a list of the 250 box-office hits based on publicly available data on movie revenues. This list contained the 50 most successful movies in Poland of the years 2005-2008 and the 25 most successful movies of the years 2004 and 2009. Each student then received a random selection of 50 movies (20%) out of the list of 250, creating an individual movie list for each student. Students were asked to indicate how often they had seen each movie (from 0 = "never" to 3 = "more than two times"). For the present analysis, answers were dichotomized into "seen" and "not seen".

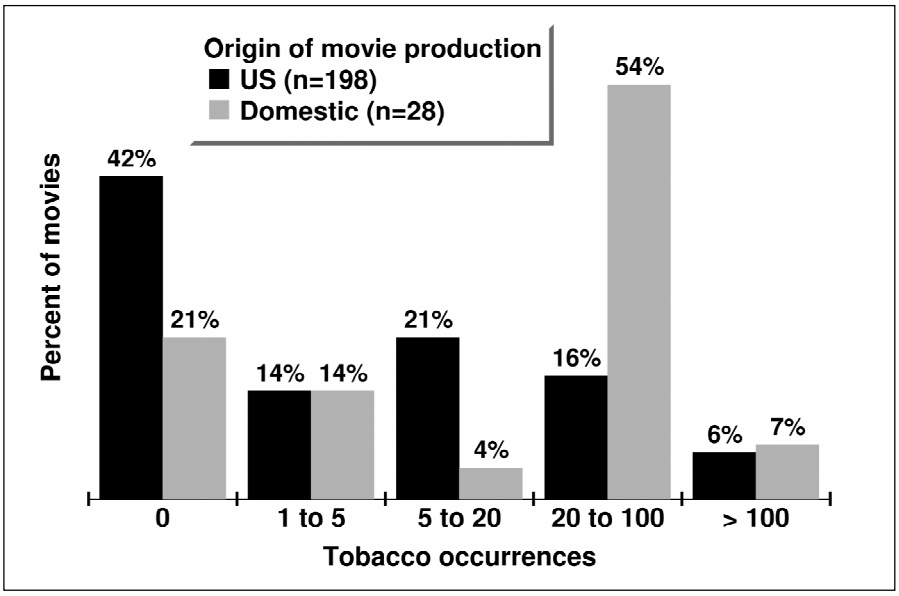

Figure 1
Number of tobacco occurrences in the 250 Polish box-office hits, dependent on origin of production.

In a parallel procedure, all included movies were content coded with regard to tobacco occurrences, a procedure described elsewhere in more detail [9]. Sixty-nine percent (n = 173) of the movies in the Polish movie sample were also successful movies in the U.S. and were content coded at the Dartmouth Media Research Laboratory. The remaining 31% (n = 77) were content coded by trained coders in Poznan and Germany. A tobacco occurrence was counted whenever a major or minor character in the movie handled or used tobacco in a scene or when tobacco use was depicted in the background (e.g., "extras" smoking in a bar scene). Occurrences were counted each time the tobacco use appeared on the screen. The exposure to the movie smoking was calculated for each student by summing up the number of tobacco occurrences in each movie they had seen. The final exposure estimate was the proportion of seen tobacco occurrences multiplied by the total number of tobacco occurrences in all 250 movies.

Results

Characteristics of the study sample

The final sample consisted of 4105 students, of whom 52.6% were female. The mean age was 14.2 years (SD 0.8) with a range of 12 to 17 and a median of 14 years. Ninety-seven percent of the sample was younger than 16 years.

Description of the included movies

Of the 250 Polish box-office hits, 44% (n=111) were pure US productions, 34% (n=85) were co-produced in the United States, 11% (n=28) were domestic productions from Poland, 10% (n=24) were pro-

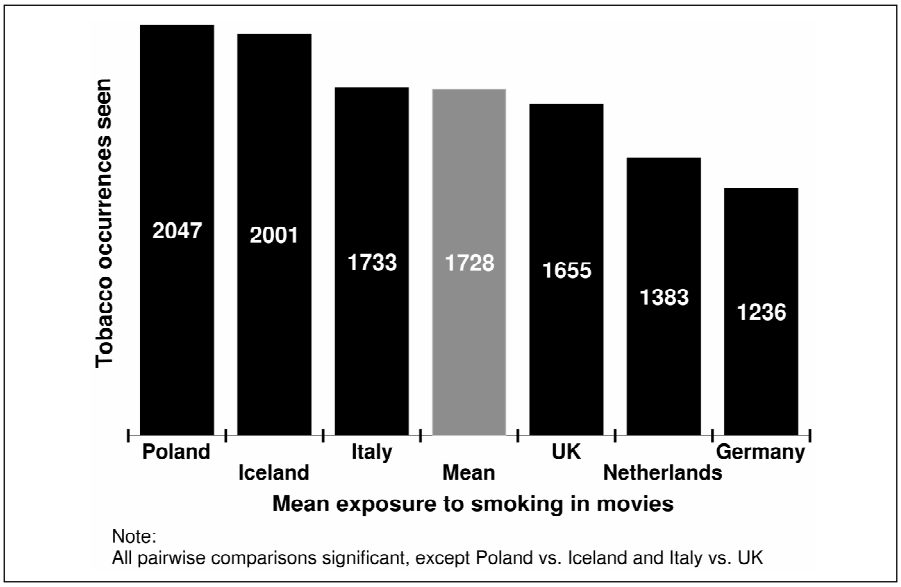

Figure 2
Mean exposure to smoking in movies in six European countries.

ductions from other EU countries, mostly France, Germany and the UK, 1% (n=2) were from China and India, respectively. The 250 movies had different classifications with regard to appropriate audiences, with 18% of the movies rated as suitable for all audiences, 21% rated for audiences aged 12 years and older, 60% for audiences aged 15 years and older, and 1% (n = 3) of the movies were rated for audiences from 18 years.

Frequency of smoking in the movies

The content coders counted a total of 5736 tobacco occurrences in the complete sample of 250 box-office hits in Poland, which is comparable to the mean number of occurrences in the movie lists of the other studies countries ($M_{other\_countries}$ = 5832 occurrences). Overall, 156 of the 250 movies (62.4%) contained at least one tobacco occurrence with a mean of 37 tobacco occurrences in movies with smoking. About a fourth of the movies (23%) displayed between 20 and 100 tobacco occurrences, 6% contained more than 100 tobacco occurrences. Tobacco occurrences were more likely found in domestic productions, with 79% of the domestic productions containing at least one smoking scene compared to 58% of the US productions ($p<.01$; see Figure 1). For movies that contained smoking, there was a higher mean number of tobacco occurrences in domestic productions ($M_{domestic}$ = 49.1 vs. M_{EU} = 38.5 vs. M_{US} = 34.1, see Figure 1). In terms of total tobacco occurrences, the 11% domestic productions made up 19% of the total tobacco occurrences.

Amount of on-screen smoking was also significantly related to the age classification assigned to a movie, with 46% of the movies rated for audiences younger than 15 showing at least one smoking scene compared to 73% of the movies rated for audiences older than 14 years ($p<.001$). The number of smoking occurrences was almost doubled in movies rated for audiences older than 14 years with a mean of 42 compared to 23 occurrences per movie.

Exposure to smoking in movies

On average, each student had seen 46% of the 250 movies and 41% of the 156 movies that contained smoking, which translates into a mean exposure of 2046 tobacco occurrences. The median exposure was 1773 occurrences, indicating a positive skew of the exposure distribution. Compared to five other countries participating in the study (Germany, Iceland, Italy, The Netherlands, and UK) Polish adolescents had the highest exposure to movie smoking (see Figure 2). The pooled mean exposure of students of the five other countries was 1601 occurrences. After adjustment for age and gender variations in the samples, Polish students still had the second highest mean exposure (1930 occurrences compared to an adjusted mean exposure of 1630 occurrences in the other countries).

Movies rated for audiences younger than 15 years had a mean reception rate of 62% compared to 35% mean reception rate for movies rated for audiences aged 15 or older. Reception rate for movies with an age rating "15 or older" was 34% also for those students that were younger than 15 at the time of the data assessment. Of the individual total exposure to movie smoking, more than 60% arose from movies rated for audiences 15 or older, also for students that were under 15 years of age. Finally, reception rate was higher for domestic (54% of the movies seen by the students) compared to international productions (45% of the movies seen, $p<.001$), leading to a relatively higher proportion of individual exposure through domestic productions of 27%, given a mean proportion of only 11% domestic movies in each questionnaire.

Discussion

This paper presented results from a European study on smoking in movies, showing the prevalence of smoking in movies in Poland and the amount of adolescent exposure. The total number of on-screen tobacco occurrences was not higher in Poland compared to the other studied countries. However, it turned out that Polish adolescents had a higher exposure to smoking in movies than those living in the other five countries.

The analyses revealed two potential explanations for this pattern of results. First, tobacco occurrences were more prevalent in domestic compared to international productions, and Polish adolescents had a high exposure to domestic productions. Second, the majority of tobacco occurrences were found in movies rated for audiences 15 years or older, and Polish adolescents had a comparatively high exposure to these kind of movies. Both, the fact that the majority of movies receive the rating "15 or older" in Poland and the fact that the rating seems to have low impact, rises questions about the validity of the Polish age classification system for movies.

Policy implications

High exposure to movie smoking has been shown to be consistently associated with adolescent smoking, also in this Polish sample [9]. This finding strongly supports recommendations to reduce exposure to movie smoking in young people. Within the Framework Convention on Tobacco Control, parties have ratified to undertake a comprehensive ban on tobacco advertising, promotion and sponsorship [17]. However, a ban on tobacco marketing alone does not limit other mass media venues from projecting favourable images of smoking, such as smoking in movies. Such an exposure could either be reduced by encouraging movie makers to decrease the amount of smoking in their movies. It could also be reduced by considering smoking in movies as inappropriate for young audiences. This should then be reflected in the age classification for movies. However, one of the preconditions for age ratings to have an effect on the amount of movie smoking exposure, is that they actually prevent young people from seeing contents not suitable for their age.

In summary, the high exposure of Polish adolescents to depictions of smoking in movies and the positive association between this exposure and adolescent smoking behaviour provides further scientific evidence in favour for measures to limit on-screen smoking.

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