



Portrayals of character smoking and drinking in Argentine-, Mexican- and US-produced films



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ABSTRACT

The aim of this study was to assess film character portrayals of tobacco and alcohol use in US and nationally-produced films that were popular in Argentina and Mexico from 2004–2012. We performed a content analysis of these films ($n = 82$ Argentine, 91 Mexican, and 908 US films, respectively). Chi-squares and t-tests were used to compare characteristics of characters who smoked or drank by country of movie production. Then data from all countries were pooled, and generalized estimating equation (GEE) models were used to determine independent correlates of character smoking or drinking. There were 480 major characters for Argentine-, 364 for Mexican-, and 4962 for US-produced films. Smoking prevalence among movie characters was similar to population smoking prevalence in Mexico (21%) and Argentina (26%), but about half in the US (11%), where movie product placements are restricted. Movie smoking declined over the period in all three countries. Movie alcohol prevalence was 40–50% across all countries and did not change with time. Demographic predictors of character smoking included: being male, 18 and older, having negative character valence. Movie smoking was not associated with lower SES. Predictors of character drinking included: being age 18 and older and positive character valence. Smoking and drinking predicted each other, illicit drug use, and higher scores for other risk behaviors. This suggests that policy development in Mexico and Argentina may be necessary to reduce the amount of character tobacco and alcohol use in films.

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1. Introduction

Adolescent tobacco and alcohol use are considerable public health concerns in the Latin American countries of Mexico and Argentina and occur at higher rates than in the US. For example, Mexican and Argentine adolescents, ages 13–15, have higher 30 day tobacco use rates than US high school students (Tobacco: 15%, 19%, vs. 9%, respectively) (Reynales-Shigematsu et al., 2011; Global School-based Student Health Survey, 2012; CDC, 2016a). Argentine adolescents, ages 13–15, also have higher rates of prior 30 day alcohol consumption than US high school students (50%, vs. 35%, respectively) (Global School-based Student Health Survey, 2012; CDC, 2016b), while data on Mexican adolescents, ages 12–17, suggest slightly lower alcohol consumption rates (30% prior 12-month consumption) than US high school students (Health Ministry (Mexico), 2012). Policies to address these risk

behaviors often consider restricting tobacco product marketing (WHO, 2009; WHO, 2010) and reductions in youth exposure to tobacco and alcohol portrayals in entertainment media (WHO, 2011).

The association between exposure to tobacco use in films and adolescent smoking initiation has been consistently documented across a variety of countries (Sargent et al., 2005; Arora et al., 2011; Morgenstern et al., 2011; Thrasher et al., 2009), leading the US National Cancer Institute (NCI, 2008), the US Surgeon General (DHHS, 2012), and the World Health Organization (WHO, 2010) to conclude the relationship is causal. This evidence underpins a section on entertainment media in the 1998 Master Settlement Agreement, which limited major cigarette companies from paying for product placement for their brands. Evidence is also accumulating to suggest there is an association between exposure to alcohol use in movies and adolescent drinking as well (Hanewinkel et al., 2012; Sargent et al., 2006; Mejia et al., 2016). Thus, while not all agree that depictions of smoking and drinking in movies should be restricted (Paynter and Chapman, 2013), there is widespread agreement in the scientific community that these depictions are important risk factors and consensus at the Centers for Disease

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Control that movie smoking is a risk factor that merits monitoring from year-to-year (CDC, 2016c).

In most countries, adolescent exposure to tobacco and alcohol portrayals in films comes from US-produced (i.e. Hollywood) films, in part because these films dominate theater exhibitions and DVD/Blu-ray sales (Thrasher et al., 2014). Nevertheless, examining the impact of characters from films produced outside the US may be important for persons from their country of origin because domestic actors may be perceived as more culturally similar to the viewer and easier to identify with. US studies of movie smoking exposure by race-ethnicity suggest US adolescents (where film characters are predominantly White) show stronger associations with behavior among White (Soneji et al., 2012) compared to Black adolescents (Tanski et al., 2012), but with Black adolescents being responsive to Black actor smoking (Cin et al., 2013). This raises the possibility that domestic films in countries like Mexico and Argentina, which predominantly depict Latino characters, might have a larger influence on adolescents in those countries.

This study reports a content analysis that examined movie character smoking and drinking in the popular films in Mexico and Argentina. The sample included domestic and US-produced films that reached the yearly top 100 grossing movies in each country for the years 2004–2012. Previous studies have nearly exclusively focused on Hollywood films, and there is only limited data on substance use portrayals in non US-produced films (see (Arora et al., 2011; Castaldelli-Maia et al., 2013) for exceptions) and the studies that do exist analyze portrayals at the level of the film and not the level of the character. The questions that guided this research were: 1) “How does character smoking and drinking portrayed in films produced in Mexico, Argentina compare to the US?”, and 2) “What characteristics are associated with smokers and drinkers in films produced in Mexico, Argentine, and the US?”. We hypothesized that character smoking would be significantly less common in Hollywood films because of limits to product placement in the US, whereas there would be few differences in the prevalence of character drinking by country of production. Based on previous research in this area we also hypothesized that character smoking would be portrayed unrealistically—more common among males (Worth et al., 2006), and no relation with socioeconomic status (Dalton et al., 2002)—regardless of country of production. We expected character alcohol prevalence to be more common than smoking prevalence overall (Bergamini et al., 2013).

2. Methods

2.1. Sample

The sampling frame included films released in Argentina and Mexico between 2004 and 2012 and listed by the Argentinean National Institute of Cinema and Visual Arts (INCAA) and Mexican Institute of Cinematography (IMCINE) among the top 100 revenue-grossing films for the year released. Films were considered for inclusion if they were Argentine-, Mexican-, or US-produced. All other non-US produced (i.e. Asian, European) were excluded from the analysis. Some US-produced films were also excluded because they were not popular in the US and therefore not previously coded by the Dartmouth Media Research Laboratory (DMRL).

2.2. Content analysis

Data for the study were drawn from a larger parent study that examines the effects of movie tobacco and alcohol exposure on behavior among Argentine and Mexican adolescents. For this study coders recorded the amount of smoking and drinking in films and evaluated movie characters in terms of sociodemographic characteristics and whether or not they engaged in substance use and/or other risk behaviors at any point during films. Coders followed previously validated methods (Sargent et al., 2005). The sample of US films consisted of films that were already coded by the DMRL. The DMRL codes the top 100 grossing films from the US every year and the coding is done by two trained coders and a content coding supervisor (Sargent et al., 2005). Mexican and Argentine researchers, who were trained by DMRL, coded their respective

country's films. Each country had two coders and a content coding supervisor. After viewing films in their entirety coders identified major characters as those who had leading roles or were central to plot development. Information about major character demographics, valence, and risk behaviors (including drug use) was coded in addition to recording whether they used tobacco and/or alcohol at any point during the film. To determine inter-rater reliability a small subsample of films from each country (20% for Mexico and Argentina, 10% for US films) were double coded.

2.3. Measures

Outcome variables included: 1) character tobacco use (yes/no for any use during the film) and 2) character alcohol use (yes/no for any use during the film), for which reliability was good ($\kappa = 0.74\text{--}0.82$ for tobacco & $\kappa = 0.79\text{--}0.90$ for alcohol, which represents the range across datasets). Covariates included gender (male/female), age (under 17/18 and older), socioeconomic status, and relationship status. Socioeconomic status was coded as low/middle and upper class because middle class was defined as “struggling but not poor” under the coding scheme while the upper classes were clearly differentiated as being “fairly well off”. For relationship status, the category of “Not in a relationship” was created for characters who were coded as single, casually dating, divorced/separated, or widowed while the category of “In a relationship” was used for characters coded as seriously dating, in a long term commitment, engaged, or married. The reliabilities for demographic variables were also good ($\kappa = 0.76\text{--}1$).

Coders rated the overall valence of characters by reflecting on “how the character is portrayed to the viewer through the script, the way they play the role, and the actions and beliefs of the character.” A character could be rated as neutral, mixed positive and negative traits, negative, or positive. For analytical purposes neutral and mixed were combined into one category, and positive used as the reference category ($\kappa = 0.55\text{--}0.62$).

A character risk behavior index was created, which summed the number of risk behaviors a character participated in during the film ($\alpha = 0.58\text{--}0.68$). These behaviors were: behaving violently, breaking the law, having unprotected sex, driving recklessly, performing acts that put the character's life in danger, as well as gambling. Illicit drug use was assessed as a separated covariate ($\kappa = 0.80\text{--}1$). The year of film release (2004–2012) was also included as an independent variable.

2.4. Analysis

All analyses were conducted in STATA v13. After limiting the sample to human characters (as opposed to animal, alien, or robot), chi-squares and t-tests were used to compare characteristics across country of production, using US-produced films as the comparison group. These analyses were repeated after limiting the sample to characters that smoke and, separately, characters that drink alcohol. Subsequently, data from all three countries were pooled. In order to account for the clustered (nested) structure of the data, in which characters were nested within movies, Generalized Estimating Equation (GEE) models with Poisson distribution, log link function, exchangeable correlation, and movie id identified as the cluster unit, were estimated to determine sociodemographics and risk behaviors of characters that smoked and/or drank alcohol. Risk ratios were estimated instead of odds ratios (ORs) because ORs are less directly interpretable when the outcome occurs in >10% of the population (Omidvari et al., 2005). After estimating fully adjusted models that included all covariates, interactions between country of production and each of the independent variables (demographics, character valence, risk behavior, year of film release) were entered into and removed from the model one at a time. No interactions, including interactions with year of movie release, were statistically significant; therefore only results from the full models are presented.

3. Results

3.1. Sample

Of the top grossing films in Mexico and Argentina from 2004 to 2012, 901 films produced in the US, 85 in Argentina, and 92 in Mexico were considered for inclusion. Three films from Argentina and one film from Mexico were excluded because they were unavailable at the time of the study. US-produced films that were not popular in the US were also excluded ($n = 133$) because they were not coded by the

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