

APPENDIX H

Literature Review on the Impact of Tobacco Advertising, Promotion, and Sponsorship Bans on Children

**Janet Chung-Hall
University of Waterloo**

November 30, 2018

Prepared for the Bill and Melinda Gates Foundation



Acknowledgements

This report was prepared for the Bill and Melinda Gates Foundation by a team of collaborators at the University of Waterloo: Dr. Janet Chung-Hall (lead author), Lorraine Craig (editing and review), and Dr. Geoffrey T. Fong (editing and review).

Literature Review: Impact of Tobacco Advertising, Promotion, and Sponsorship Bans on Children

Summary

1. The tobacco industry uses a wide array of evolving marketing strategies to encourage young people to start using tobacco, encourage current users to continue or increase their product use, and deter current users from quitting.
2. Comprehensive bans on tobacco advertising, promotion, and sponsorship are effective for reducing tobacco use among youth, and are the only way to prevent the tobacco industry from switching to the marketing of their products via unregulated channels.
3. Young people around the world, especially those in low-middle income countries, continue to be exposed to many forms of tobacco advertising, promotion, and sponsorship.
4. The tobacco industry has increasingly shifted to the use of point of sale marketing in response to the implementation of bans on traditional forms of tobacco advertising, promotion, and sponsorship.
5. Strong evidence from high-income countries indicates that exposure to tobacco advertising and promotion (including advertising and tobacco product displays at point of sale) increases the likelihood that young people will start smoking and go on to become established smokers.
6. Point of sale tobacco display bans are highly effective for decreasing exposure to tobacco promotion, reducing smoking, and denormalizing smoking behavior among youth in high-income countries.
7. Research consistently shows that exposure to smoking in movies increases smoking susceptibility, smoking initiation, and positive attitudes towards smoking among adolescents from countries of all income levels.
8. Some evidence from HICs suggests that exposure to tobacco marketing on the Internet and social media may increase youth smoking — highlighting the need for research to keep pace with new forms of media that are popular with youth.
9. Banning tobacco product sales near schools reduces retailer density and youth exposure to tobacco products, which may then lead to a decrease in youth smoking.
10. Comprehensive tobacco advertising, promotion, and sponsorship bans are strongly needed to curb the use of smokeless tobacco, as recommended under FCTC Article 13 guidelines, particularly in low-middle income countries where smokeless tobacco products are heavily advertised and promoted, and rates of product use among youth are high.

Background

Tobacco advertising, promotion, and sponsorship (TAPS) activities are vital for the survival of the tobacco industry. Each year, tobacco companies around the world invest billions of dollars to market their products in order to maintain or increase use among current users, and to attract new generations of users [1]. Young people, particularly those who have not yet started using tobacco, are aggressively targeted by the tobacco industry as potential long-term customers to replace current users who die from tobacco-related diseases.

The tobacco industry has a long history of marketing their products to youth around the world, who continue to be exposed to many different forms of TAPS. Exposure to tobacco advertising is especially high among young people in low-middle income countries (LMICs). For example, Global Youth Tobacco Surveys (GYTS) conducted in five North African countries from 2005 to

2007 found that 98% of youth (aged 13 to 15 years) across all countries reported exposure to at least one type of advertising/promotion in the last 30 days [2]. The most recent data from the 2016-17 Global Adult Tobacco Survey (GATS) in India also show that a substantial proportion of young adults are exposed to tobacco advertising. Compared to older adults (aged 25+ years), more young adults (aged 15 to 24 years) noticed tobacco advertising (23% vs 18%), and noticed cigarette or bidi advertising or promotion (26% vs. 21%) in the last 30 days. Noticing of tobacco advertising was even higher among those who currently smoked — 40% of young adult smokers noticed cigarette or bidi advertising in the last 30 days, compared to 29% of older adult smokers [3].

Youth are highly receptive to tobacco marketing that delivers the message that smoking can fulfill their aspirations for independence, popularity, social acceptance and inclusion, and positive self-image [4]. In fact, a study of the association between advertising expenditures and corresponding cigarette sales found that youth (aged 12 to 18 years) were three times more sensitive to cigarette advertising than adults [5]. Studies from around the world have also shown that tobacco marketing is very effective at reaching young children. For example, a study conducted in the US found that 91% of 6 year old children were correctly able to match a picture of the “Old Joe” cartoon character for Camel brand cigarettes with a picture of a cigarette [6]. Similarly, results of a study conducted in 6 LMICs found that 68% of children (aged 5 to 6 years) could identify at least one cigarette brand logo (range: 50% in Russia to 86% in China) [7]. Given young people’s high exposure and sensitivity to tobacco marketing, it is likely that these tactics will have an impact on their smoking behavior. Indeed, numerous studies from high-income countries (HICs) have shown that exposure to tobacco advertising and promotion increases the likelihood that children and adolescents will experiment with and start smoking, and go on to become established smokers [8–12].

FCTC Article 13 obligates Parties, within 5 years after entry into force of the WHO FCTC, to implement a comprehensive ban on all forms of TAPS. Guidelines for the implementation of Article 13 state that a comprehensive TAPS ban should cover all forms of direct and indirect TAPS, with no exceptions. Comprehensive TAPS bans can lead to dramatic reductions in public exposure to tobacco marketing [13,14], and are one of the most effective policies to reduce tobacco consumption [15,16]. In contrast, partial bans will have a limited or no effect on reducing tobacco consumption [15,17], because the industry can simply direct their marketing efforts to unregulated channels. Comprehensive TAPS bans are likely to have an even greater impact on youth than adults. However, no studies to date have evaluated the potential differential impact of TAPS bans on youth versus adults.

Comprehensive TAPS bans are particularly important in LMICs, where youth are likely to be exposed to very high levels of tobacco marketing. A study in 462 communities across 16 countries found that compared to HICs, the number of tobacco advertisements was 81 times higher in low-income countries [13]. Few studies to date have examined the impact of TAPS bans on young people in LMICs.

Partial TAPS bans do not reduce youth exposure to tobacco marketing

Partial TAPS bans allow the industry to shift resources to unregulated channels, thereby continuing to expose youth to tobacco marketing.

- Study from Norway found that despite a ban on most forms of TAPS, about half of adolescents (aged 13 to 15 years) reported exposure to tobacco marketing, with ashtrays, clothing, and carrying bags as the most commonly cited promotional items.

Youth who reported seeing tobacco marketing in 5 or more locations were twice as likely to be current smokers and to expect to smoke at 20 years of age, compared to those who reported no exposure [20].

- One year after the implementation of a ban on most forms of TAPS in the UK, there was a decrease in children's (aged 11 to 16 years) awareness of tobacco marketing via regulated channels, including posters/billboards (65% vs. 46%), free gifts (24% vs. 14%), and special prices (29% vs 18%). However, there was no change in awareness of tobacco marketing through channels that were not covered by the TAPS ban, such as branded clothing, famous people smoking, and new pack designs [21].

Point of sale tobacco marketing increases smoking among youth

As more countries have implemented bans on the marketing of tobacco products, tobacco companies have shifted to the promotion of their products at points of sale (POS) in retail environments. POS marketing is a highly effective strategy for the tobacco industry to reach consumers and boost their product sales. Data from the US estimates that POS marketing can increase average tobacco product sales by up to 28% [22]. There is a strong body of evidence that exposure to tobacco retail displays is associated with increased susceptibility to, experimentation with, and initiation of smoking among youth in HICs [23–26]. It is well-established that exposure to POS marketing increases the likelihood that young people will start smoking and go on to become long-term smokers.

- A 2016 meta-analysis found that youth (aged 18 years or younger) frequently exposed to POS tobacco promotion had 1.6 times higher odds of trying smoking and 1.3 times higher odds of being susceptible to future smoking than those less frequently exposed [27].
- Systematic literature reviews have consistently found a positive association between exposure to POS promotion and increased risk of smoking, and smoking susceptibility among youth under 18 years of age [25,28].

POS tobacco display bans reduce youth exposure to tobacco promotion and smoking

Iceland was the first country to implement a ban on POS tobacco displays in 2001. Since then, a growing number of countries have implemented similar bans, including Canada, Australia, Thailand, Belarus, Ireland, and Norway. As of 2016, 20 countries have banned POS tobacco product displays [29].

Studies from HICs show that POS display bans lead to a reduction in youth exposure to the promotion of tobacco products.

- After POS tobacco displays were banned in Australia, youth and young adults (aged 12 to 24 years) were significantly less likely to report seeing tobacco pack displays in stores they had visited in the last month (80% pre-ban vs. 64% at 6 to 12 months and 24 months post-ban) [30].
- In the 10 month period after the implementation of a POS tobacco display ban in Ireland, there was a significant decrease in the proportion of youth (aged 13 to 15 years) who recalled seeing tobacco displays in shops (81% pre-ban vs. 22% post-ban) [31].
- Evaluation of Norway's POS display ban also shows that young smokers and snus users were more likely to report that the ban made it more difficult for them to choose a brand than older adults (35% of 15 to 24 year olds vs. 23% of 45 to 54 year olds) [32].

POS tobacco display bans lead to long-term reductions in smoking and help to denormalize smoking behavior among youth from HICs.

- Following a ban on POS tobacco displays in Australia, youth and young adults (aged 12 to 24 years) were significantly less likely to over-estimate peer smoking (54% pre-ban vs. 50% at 7 to 12 months post-ban), and to be current smokers (15% pre-ban vs. 11% at 24 months post-ban). There was also a significant decrease in the proportion of youth smokers, ex-smokers, and experimenters who reported that seeing POS tobacco displays made them think about smoking (17% pre-ban vs. 11% at 24 months post-ban) [30].
- In the 10 month period after POS tobacco displays were banned in Ireland, there was a significant decrease in the proportion of youth (aged 13 to 15 years) who believed that more than 20% of children their age smoked from 65% pre-ban to 45% post-ban [31].
- A study of adolescents (aged 15 and 16 years) in 25 European countries found that the implementation of a POS tobacco display ban was associated with a 15% stronger decrease in the odds of smoking (2 to 6 years post-ban) than when no display ban had been implemented [33].
- Two years after a POS tobacco display ban was implemented in New Zealand, there was a significant decrease in smoking experimentation (23% pre-ban vs. 17% post-ban), current smoking (9% pre-ban vs. 7% post-ban), and smoking initiation (30% pre-ban vs. 11 post-ban) among adolescents (aged 14 to 15 years) [34].

Depiction of smoking in movies is effective in reaching youth

Many governments worldwide have banned different forms of tobacco marketing in order to prevent smoking initiation, particularly among children. As of 2016, 144 countries have implemented bans on tobacco advertising on national television, radio, and in magazines and newspapers [1]. However, the indirect marketing of tobacco products continues to be unregulated in most countries. This includes the use of tobacco imagery and product use in films rated for children, which has a powerful influence on young people who look up to and imitate popular film stars.

The tobacco industry has a long history of using movies to promote their products [35,36]. Smoking is still frequently depicted in youth-rated movies produced in the US and other countries around the world.

- In the US, the number of individual occurrences of tobacco use (tobacco incidents) in top-grossing movies with a PG-13 rating increased by 43% from 2010 to 2016 [37].
- While there was a 50% decrease in the number of youth-rated Hollywood films with smoking from 2002 to 2017, the total number of such films was still 29% higher in 2017 than 2016. In addition, there has been very little change in the number of tobacco incidents in youth-rated Hollywood films from 2010 to 2017 [38].
- A 2015 study found that more than half of youth-rated films from six European countries and two Latin American countries depicted smoking (range: 53% of youth-rated films in the Netherlands to 94% of youth-rated films in Iceland). Results also showed that youth-rated films from Germany, Iceland, Italy, and Argentina were more likely to depict tobacco use than films from the US [39].

Exposure to smoking in movies increases youth smoking

Studies from several HICs show a strong dose-response relationship between exposure to smoking in films and likelihood of smoking initiation among adolescents and young adults: the more smoking young people see in movies, the more likely they are to smoke — even after controlling for factors such as socioeconomic status, parental smoking, peer smoking, rebelliousness, and number of movies viewed.

- In the US, older teens and young adults (mean age 18.7 years) with the highest exposure to smoking in movies were twice as likely to be established smokers compared to those with the lowest exposure [40].
- A study of adolescents (mean age 13.4 years) in Germany, Iceland, Italy, the Netherlands, Poland, and Scotland found a significant positive association between exposure to smoking in movies and ever smoking in all six countries [41].
- A study in New Zealand found that the likelihood of smoking increased by 11% for every 100-incident increase in exposure to smoking incidents in movies among young adults (aged 18 to 25 years) [42].

In fact, the US Surgeon General has concluded that there is a causal relationship between depictions of smoking in the movies and smoking initiation among young people [43], and that the implementation of an R-rating for films with tobacco imagery would reduce youth exposure to onscreen smoking by 50% and smoking rates by 18% [44].

A few studies in LMICS have examined the impact of exposure to smoking imagery in movies on youth. Overall, findings are consistent with those from HICs, where exposure to smoking in movies is significantly associated with increased smoking among adolescents.

- A study from Argentina found that adolescent never-smokers (average 12.5 years) exposed to >136 minutes of smoking in movies were nearly 2 times more likely to become susceptible to smoking, and to try smoking than those exposed to <41 minutes of smoking in movies [45].
- A study of adolescent never-smokers (average 12 years of age) in Mexico found that orientation to English-language movies was associated with greater exposure to smoking in movies. This in turn, was linked to more positive smoking-related expectancies and increased smoking susceptibility [46].
- Study based on GYTS data from Mexico showed a significant positive association between exposure to smoking in films and susceptibility to smoking, favorable attitudes toward smoking, and perceived prevalence of peer smoking among adolescent never-smokers (aged 12 to 15 years) [47].
- Another GYTS study found that compared to adolescent never-smokers in Mexico who reported the lowest levels of exposure to smoking in films, those with the highest exposure were more than twice as likely to have smoked in the previous month [48].
- Study conducted in India found that the odds of ever tobacco use was more than double among adolescents (aged 12 to 16 years) with high exposure to tobacco use in Bollywood movies, compared to those with low exposure [49].
- A GYTS study conducted in Zambia found a significant positive association between exposure to actors smoking in television shows, videos or movies and current smoking among adolescents (aged 13 to 15 years) [50].

Evaluation of smoke-free ‘Film Rules’ in India

India is the largest producer of films in the world. More than 900 films are produced in the country each year, and are viewed by an estimated 250 million young people in India alone, along with large audiences in South Asia, the Middle East, and parts of the UK, US, Africa, and Europe [51].

In 2011 and 2012, the Government of India issued amendments to the Cigarette and Other Tobacco Products Act (COTPA) also known as the ‘Film Rules.’ The Film Rules require that all films and television programmes that depict tobacco products/tobacco use (produced on or after 2 October 2012) to include:

- A strong editorial justification for the necessity of tobacco depiction to India’s Central Board of Film Certification;
- Government-produced anti-tobacco health spots (30 seconds minimum) at the beginning and middle of the programme;
- Display of a prominent, static anti-tobacco health warning during the period of tobacco depiction;
- An audio-visual disclaimer (20 seconds minimum) on the ill effects of tobacco use at the beginning and middle of the programme.

A post-evaluation study conducted approximately 3 years after the Film Rules came into force in India found that [52]:

- 99% of films with tobacco scenes implemented at least one of the following provisions of the Film Rule: anti-tobacco health spots, static anti-tobacco health warning, or audio-visual disclaimer on risks of tobacco use.
- Only 27% of films implemented all provisions of the Film Rules in the approved manner.
- Viewers generally agreed that the health spots, anti-tobacco health warnings, and disclaimers on risks of tobacco use were easy to understand (47% to 52%), made them stop and think (46% to 48%), made them feel concerned about the health effects of tobacco (42% to 47%), made them more likely to talk to others (42% to 48%), and made them more likely to quit (27% to 31%).

Youth exposed to tobacco marketing on the Internet and social media are likely to be susceptible to and start smoking

As more countries have banned tobacco advertising via traditional channels, the tobacco industry has increasingly focused on using the Internet and social media to promote their products to young audiences. In recent years, there has been a rapid increase in the visibility of pro-tobacco messages, imagery, and brand promotion on social media platforms that are popular with young people, such as YouTube [53–55], smartphone apps [56], Facebook [55,57,58], Instagram [59], and Twitter [60]. A 2018 case study from Indonesia provides evidence for the use of social media and Internet-based tobacco marketing that targets young people. Results showed that more than 1 million people voted on the ‘Go Ahead challenge’ website for an industry-sponsored design competition for a limited edition *A Mild* cigarette package, which was then launched at a youth-focused concert series that generated more than 25 000 Instagram posts for the two most popular hashtags endorsed during the events [61].

Few studies have examined the impact of exposure to tobacco marketing through social media on tobacco use among youth, with no research from LMICs. Recent studies (mostly from the US) suggest a strong association between exposure to online tobacco marketing and smoking behavior among young people, even after controlling for factors such as SES, parental smoking, peer smoking, and exposure to other forms of tobacco advertising.

- A study of young adults (aged 18 to 24 years) in the US found that exposure to tobacco use on social media was a significant predictor of future smoking, over and above the influence of television and movie depictions of smoking [27].
- Study from the US found that high levels of engagement with online tobacco marketing among youth (aged 12 to 17 years) increases the odds of susceptibility to tobacco use and ever trying tobacco among non-users [62].
- Non-smoking young adults (aged 18 to 25 years) in the US who scanned social media for pro-smoking behavior were significantly more likely to try smoking in the future [63].
- Compared to US adolescents (aged 12 to 17 years) who did not engage with online tobacco marketing, those who engaged were significantly more likely to start smoking (20% vs. 12%), have increased frequency of tobacco use (10% vs. 4%), progress to the use of multiple tobacco products (6% vs. 2%), and less likely to quit (16% vs. 22%) [64].
- Exposure to tobacco advertising on Facebook or Myspace was associated with willingness to try smoking among youth (aged 9 to 19 years) in the US [65].
- Survey in Australia found a significant association between exposure to online tobacco advertising and branding and smoking susceptibility among adolescent never-smokers (aged 12 to 17 years) [66].

Research on youth exposure to and effects of tobacco promotion through online streaming platforms is needed

There is a strong need for research on the level and potential impact of exposure to tobacco in newer forms of online streaming content that are especially popular with young people. For example, a 2018 study by the Truth Initiative® identified the 14 most popular shows among young people (aged 15 to 24 years), and analyzed them for tobacco imagery. Results showed that 79% of these shows featured prominent depictions of smoking, with original Netflix series having more than twice the number of tobacco incidents (n=319) compared to broadcast and cable television shows (n=139).

Bans on tobacco sales near schools lead to reductions in retailer density

It is well-documented that high density of tobacco retailers around schools is associated with increased smoking among youth.

- A 2017 literature review found that density of and proximity to tobacco retailers from school/homes was significantly associated with lifetime smoking, and smoking in the past 12 months and 30 days among adolescents (aged 12 to 18 years) [67].
- Data from the US show that smoking prevalence among high school students was 3.2 percentage points higher at schools in neighborhoods with the highest tobacco outlet density compared to neighborhoods with no tobacco outlets [68].
- Study from Australia found that high tobacco retail outlet density was associated with a significant increase in the number of cigarettes smoked among secondary school students in the past 7 days (aged 12 to 17 years) [69].

Bans on the sale of tobacco products near schools decrease retailer density and are thus effective for reducing youth exposure to tobacco products, especially in lower-income neighborhoods.

- Study from the US found that banning tobacco retailers from operating within 1000 feet of schools would reduce the number of tobacco retailers per 1000 people in New York (from 1.28 to 0.36 in the lowest income neighborhoods, and from 0.84 to 0.45 in the highest income neighborhoods) and Missouri (from 1.18 to 0.82 in lowest income neighborhoods, and from 0.48 to 0.36 in highest income neighborhoods) [70].

Bans on the sale of tobacco products in close proximity to schools are particularly important in LMICs, where children typically have easy access to tobacco products. Surveys conducted in more than 23 countries show that half of children (aged 13 to 15 years) in most countries reported that they could purchase tobacco products from street vendors, retail shops, mobile vendors, vending machines, and kiosks that are often located within 1000 feet or closer to schools [19]. Many retailers display tobacco products at POS alongside products that appeal to children, such as candy, snacks, and sugary drinks. In addition, nearly all retailers provide children with access to affordable tobacco products. For example, single cigarette sticks were sold by nearly all retailers located within eyesight of primary or secondary schools in Pakistan (99%), Kenya (92%), Bangladesh (99%), and Uganda (94%) [71–74].

Implementation of TAPS bans for smokeless tobacco products

Smokeless tobacco products are becoming more popular with youth and may be a gateway to cigarette smoking

Smokeless tobacco (SLT) product use has become increasingly common among young people worldwide over the last 10 years [75]. SLT use is especially high among adolescents in Africa, South East Asia, and the Western Pacific regions [76].

Studies (nearly all from the US) generally show that SLT use serves as a gateway to cigarette smoking among adolescents and young adults.

- Longitudinal study found that adolescent boys (aged 11 to 19 years at baseline) who did not smoke cigarettes but regularly used SLT were 3 times more likely to be current cigarette smokers at 4 years after baseline, compared to those who never used cigarettes or SLT [77].
- Another study showed that adolescent boys who used SLT at baseline were more than twice as likely to be weekly cigarette smokers at 2 years after baseline than those who did not use SLT at baseline [78].
- Longitudinal data from the Population Assessment of Tobacco and Health (PATH) study show ever users of SLT at baseline were twice as likely to be cigarette smokers at 1 year follow-up than those who were never users at baseline [79].
- A study of young adults (males ages 22 to 34 years) found no association between SLT use and future cigarette smoking among young adult males [80].
- A study based on GYTS data from 32 countries found high rates of concurrent cigarette smoking and SLT use among adolescents (aged 13 to 15 years) in Europe, the US, and several other countries in the Americas and Western Pacific regions, which may suggest that SLT use is a gateway to cigarette smoking [76].

Few countries have made progress in curbing the marketing of smokeless tobacco products

SLT products are designed and marketed by the tobacco industry to appeal to young people — these products are often flavored, widely accessible, inexpensive, feature brightly colored packaging, and are often available in single-serve packs/pouches [43,81].

FCTC Article 13 guidelines recommend a comprehensive TAPS ban that applies to all types of tobacco products, including smokeless tobacco (SLT). As of 2016, only 15 (8%) FCTC Parties have comprehensive bans on all forms of direct and indirect advertising of SLT products [1]. Importantly, most countries do not have bans on the advertising and promotion of SLT products through channels that are known to be effective at reaching youth. For example, implementation of Article 13 provisions is lowest for bans on the direct advertising of SLT at POS, and the depiction of product use in television/films [82].

There is a strong need for the implementation of SLT TAPS bans in LMICs, where rates of SLT use among youth tend to be higher than in HICs [83]. Young people in LMICs are also likely to be exposed to high levels of SLT advertising and promotion. For example, GYTS data show that approximately 70% of students (aged 13 to 15 years) in India reported seeing SLT advertisements on billboards, and >50% reported seeing SLT on television and/or films [84].

References

- 1 World Health Organization. WHO report on the global tobacco epidemic, 2017. Monitoring tobacco use and prevention policies. Geneva: 2017. <http://apps.who.int/iris/bitstream/10665/255874/1/9789241512824-eng.pdf?ua=1&ua=1>
- 2 Madkour AS, Ledford EC, Andersen L, *et al.* Tobacco advertising/promotions and adolescents' smoking risk in Northern Africa. *Tob Control* 2014;**23**:244–52. doi:10.1136/tobaccocontrol-2012-050593
- 3 Tata Institute of Social Science (TISS), Mumbai and Ministry of Health and Family Welfare, Government of India. Global Adult Tobacco Survey GATS 2 India 2016-17. New Delhi: 2018. <https://mohfw.gov.in/documents/publications>
- 4 National Cancer Institute. The role of the media in promoting and reducing tobacco use: smoking and tobacco control monograph No. 19. NIH Pub. No. 07-6242. Bethesda, MD: 2008. https://cancercontrol.cancer.gov/brp/tcrb/monographs/19/m19_complete.pdf
- 5 Pollay RW, Siddarth S, Siegel M, *et al.* The last straw? Cigarette advertising and realized market shares among youths and adults, 1979-1993. *J Mark* 1996;**60**:1. doi:10.2307/1251927
- 6 Fischer PM, Schwartz MP, Richards JW, *et al.* Brand logo recognition by children aged 3 to 6 years. Mickey Mouse and Old Joe the Camel. *JAMA* 1991;**266**:3145–8.
- 7 Borzekowski DLG, Cohen JE. International reach of tobacco marketing among young children. *Pediatrics* 2013;**132**:e825–31. doi:10.1542/peds.2013-1150
- 8 Pierce JP, Choi WS, Gilpin EA, *et al.* Tobacco industry promotion of cigarettes and adolescent smoking. *JAMA* 1998;**279**:511–5.
- 9 Sargent JD, Dalton M, Beach M. Exposure to cigarette promotions and smoking uptake in adolescents: evidence of a dose-response relation. *Tob Control* 2000;**9**:163–8.
- 10 Gilpin EA, White MM, Messer K, *et al.* Receptivity to tobacco advertising and promotions among young adolescents as a predictor of established smoking in young adulthood. *Am J Public Health* 2007;**97**:1489–95. doi:10.2105/AJPH.2005.070359
- 11 Biener L, Siegel M. Tobacco marketing and adolescent smoking: more support for a causal inference. *Am J Public Health* 2000;**90**:407–11.
- 12 Lovato C, Watts A, Stead LF. Impact of tobacco advertising and promotion on increasing adolescent smoking behaviours. *Cochrane Database Syst Rev* 2011;Art. No.: CD003439. doi:10.1002/14651858.CD003439.pub2
- 13 Caixeta R, Sinha D, Khoury R, *et al.* Adult awareness of tobacco advertising, promotion, and sponsorship--14 countries. *MMWR Morb Mortal Wkly Rep* 2012;**61**:365–9.
- 14 Kasza KA, Hyland AJ, Brown A, *et al.* The effectiveness of tobacco marketing regulations on reducing smokers' exposure to advertising and promotion: findings from the International Tobacco Control (ITC) Four Country Survey. *Int J Env Res Public Health* 2011;**8**:321–40. doi:10.3390/ijerph8020321
- 15 Saffer H, Chaloupka F. The effect of tobacco advertising bans on tobacco consumption. *J Health Econ* 2000;**19**:1117–37. doi:10.1016/S0167-6296(00)00054-0

- 16 Blecher E. The impact of tobacco advertising bans on consumption in developing countries. *J Health Econ* 2008;**27**:930–42. doi:10.1016/j.jhealeco.2008.02.010
- 17 Lantz PM, Jacobson PD, Warner KE, *et al.* Investing in youth tobacco control: a review of smoking prevention and control strategies. *Tob Control* 2000;**9**:47–63. doi:10.1136/TC.9.1.47
- 18 Savell E, Gilmore AB, Sims M, *et al.* The environmental profile of a community's health: a cross-sectional study on tobacco marketing in 16 countries. *Bull World Health Organ* 2015;**93**:851–61. doi:10.2471/BLT.15.155846
- 19 Campaign for Tobacco-Free Kids. Big tobacco: tiny targets. 2018.<http://www.takeapart.org/tiny-targets/>
- 20 Braverman MT, Aarø LE. Adolescent smoking and exposure to tobacco marketing under a tobacco advertising ban: findings from 2 Norwegian national samples. *Am J Public Health* 2004;**94**:1230–8.
- 21 Moodie C, MacKintosh AM, Brown A, *et al.* Tobacco marketing awareness on youth smoking susceptibility and perceived prevalence before and after an advertising ban. *Eur J Public Health* 2008;**18**:484–90. doi:10.1093/eurpub/ckn016
- 22 Feighery EC, Ribisl KM, Schleicher N, *et al.* Cigarette advertising and promotional strategies in retail outlets: results of a statewide survey in California. *Tob Control* 2001;**10**:184–8. doi:10.1136/TC.10.2.184
- 23 Henriksen L, Schleicher NC, Feighery EC, *et al.* A longitudinal study of exposure to retail cigarette advertising and smoking initiation. *Pediatrics* 2010;**126**:232–8. doi:10.1542/peds.2009-3021
- 24 MacKintosh AM, Moodie C, Hastings G. The association between point-of-sale displays and youth smoking susceptibility. *Nicotine Tob Res* 2012;**14**:616–20. doi:10.1093/ntr/ntr185
- 25 Paynter J, Edwards R. The impact of tobacco promotion at the point of sale: a systematic review. *Nicotine Tob Res* 2009;**11**:25–35. doi:10.1093/ntr/ntn002
- 26 Maziak W, Rzehak P, Keil U, *et al.* Smoking among adolescents in Muenster, Germany: increase in prevalence (1995-2000) and relation to tobacco advertising. 2003;**36**:172–6. doi:10.1016/S0091-7435(02)00020-8
- 27 Robertson L, Cameron C, McGee R, *et al.* Point-of-sale tobacco promotion and youth smoking: a meta-analysis. *Tob Control* 2016;**25**:e83–9. doi:10.1136/tobaccocontrol-2015-052586
- 28 Robertson L, McGee R, Marsh L, *et al.* A systematic review on the impact of point-of-sale tobacco promotion on smoking. *Nicotine Tob Res* 2015;**17**:2–17. doi:10.1093/ntr/ntu168
- 29 He Y, Shang C, Huang J, *et al.* Global evidence on the effect of point-of-sale display bans on smoking prevalence. *Tob Control* 2018; Published online first: 13 January 2018. doi:10.1136/tobaccocontrol-2017-053996
- 30 Dunlop S, Kite J, Grunseit AC, *et al.* Out of sight and out of mind? Evaluating the impact of point-of-sale tobacco display bans on smoking-related beliefs and behaviors in a sample of Australian adolescents and young adults. *Nicotine Tob Res* 2015;**17**:761–8. doi:10.1093/ntr/ntu180

- 31 McNeill A, Lewis S, Quinn C, *et al.* Evaluation of the removal of point-of-sale tobacco displays in Ireland. *Tob Control* 2011;**20**:137–43. doi:10.1136/tc.2010.038141
- 32 Scheffels J, Lavik R. Out of sight, out of mind? Removal of point-of-sale tobacco displays in Norway. *Tob Control* 2013;**22**:e37–42. doi:10.1136/tobaccocontrol-2011-050341
- 33 Van Hurck MM, W Nuyts PA, Monshouwer K, *et al.* Impact of removing point-of-sale tobacco displays on smoking behaviour among adolescents in Europe: a quasi-experimental study. *Tob Control* 2018;**0**:1–8. doi:10.1136/
- 34 Edwards R, Ajmal A, Healey B, *et al.* Impact of removing point-of-sale tobacco displays: data from a New Zealand youth survey. *Tob Control* 2017;**26**:392–8. doi:10.1136/tobaccocontrol-2015-052764
- 35 Lum KL, Polansky JR, Jackler RK, *et al.* Signed, sealed and delivered: "big tobacco" in Hollywood, 1927-1951. *Tob Control* 2008;**17**:313–23. doi:10.1136/tc.2008.025445
- 36 Wilson N, Tucker A. Die Another Day, James Bond's smoking over six decades. *Tob Control* 2016;**26**:489–90. doi:10.1136/tobaccocontrol-2016-053426
- 37 Tynan MA, Polansky JR, Titus K, *et al.* Tobacco use in top-grossing movies - United States, 2010-2016. *MMWR Morb Mortal Wkly Rep* 2017;**66**:681–6. doi:10.15585/mmwr.mm6626a1
- 38 Polansky J, Modisette D, Garcia C, *et al.* Smoking in top-grossing US movies: 2017. San Francisco: 2018. <https://escholarship.org/uc/item/5939j0kd>
- 39 Barrientos-Gutierrez I, Kollath-Cattano C, Mejía R, *et al.* Comparison of tobacco and alcohol use in films produced in Europe, Latin America, and the United States. *BMC Public Health* 2015;**15**:1096. doi:10.1186/s12889-015-2378-x
- 40 Dalton MA, Beach ML, Adachi-Mejia AM, *et al.* Early exposure to movie smoking predicts established smoking by older teens and young adults. *Pediatrics* 2009;**123**:e551–8. doi:10.1542/peds.2008-2102
- 41 Morgenstern M, Poelen EAP, Scholte R, *et al.* Smoking in movies and adolescent smoking: cross-cultural study in six European countries. *Thorax* 2011;**66**:875–83. doi:10.1136/thoraxjnl-2011-200489
- 42 Gendall P, Hoek J, Edwards R, *et al.* Effect of exposure to smoking in movies on young adult smoking in New Zealand. *PLoS One* 2016;**11**:e0148692. doi:10.1371/journal.pone.0148692
- 43 U.S. Department of Health and Human Services. Preventing tobacco use among youth and young adults. Atlanta: 2012. <https://www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/full-report.pdf>
- 44 US Department of Health and Human Services. The health consequences of smoking—50 years of progress. A report of the Surgeon General. Atlanta: 2014. <https://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf>
- 45 Mejia R, Pérez A, Peña L, *et al.* Smoking in movies and adolescent smoking initiation: a longitudinal study among Argentinian adolescents. *J Pediatr* 2017;**180**:222–8. doi:10.1016/J.JPEDS.2016.10.001

- 46 Lorenzo-Blanco EI, Abad-Vivero EN, Barrientos-Gutierrez I, *et al.* Movie language orientation, gender, movie smoking exposure, and smoking susceptibility among youth in Mexico. *Nicotine Tob Res* 2017;Published online first:24 July 2017. doi:10.1093/ntr/ntx167
- 47 Thrasher JF, Jackson C, Arillo-Santillán E, *et al.* Exposure to smoking imagery in popular films and adolescent smoking in Mexico. *Am J Prev Med* 2008;**35**:95–102. doi:10.1016/j.amepre.2008.03.036
- 48 Thrasher JF, Sargent JD, Huang L, *et al.* Does film smoking promote youth smoking in middle-income countries?: A longitudinal study among Mexican adolescents. *Cancer Epidemiol Biomarkers Prev* 2009;**18**:3444–50. doi:10.1158/1055-9965.EPI-09-0883
- 49 Arora M, Mathur N, Gupta VK, *et al.* Tobacco use in Bollywood movies, tobacco promotional activities and their association with tobacco use among Indian adolescents. *Tob Control* 2012;**21**:482–7. doi:10.1136/tc.2011.043539
- 50 Siziya S, Muula A, Rudatsikira E, *et al.* Associations of advertisement-promotion-sponsorship-related factors with current cigarette smoking among in-school adolescents in Zambia. *Ann Afr Med* 2009;**8**:229. doi:10.4103/1596-3519.59577
- 51 Strategic Mediaworks, WHO Tobacco Free Initiative. Bollywood: victim or ally? A study of the portrayal of tobacco in Indian cinema: executive summary/report prepared Strategic Mediaworks for the Tobacco Free Initiative, World Health Organization (WHO), Geneva. Geneva: 2003. <http://apps.who.int/iris/handle/10665/42703>
- 52 Vital Strategies. Evaluation of tobacco free film and television policy in India. New York: 2017. <http://www.vitalstrategies.org/publications/evaluation-of-tobacco-free-film-and-television-policy-in-india/>
- 53 Bromberg JE, Augustson EM, Backinger CL. Portrayal of smokeless tobacco in YouTube videos. *Nicotine Tob Res* 2012;**14**:455–62. doi:10.1093/ntr/ntr235
- 54 Carroll M V, Shensa A, Primack BA. A comparison of cigarette- and hookah-related videos on YouTube. *Tob Control* 2013;**22**:319–23. doi:10.1136/tobaccocontrol-2011-050253
- 55 Liang Y, Zheng X, Zeng DD, *et al.* Exploring how the tobacco industry presents and promotes itself in social media. *J Med Internet Res* 2015;**17**:e24. doi:10.2196/jmir.3665
- 56 BinDhim NF, Freeman B, Trevena L. Pro-smoking apps for smartphones: the latest vehicle for the tobacco industry? *Tob Control* 2014;**23**:e4. doi:10.1136/tobaccocontrol-2012-050598
- 57 Freeman B, Chapman S. British American Tobacco on Facebook: undermining Article 13 of the global World Health Organization Framework Convention on Tobacco Control. *Tob Control* 2010;**19**:e1–9. doi:10.1136/tc.2009.032847
- 58 Jackler RK, Li VY, Cardiff RAL, *et al.* Promotion of tobacco products on Facebook: policy versus practice. *Tob Control* 2018;Published online first:5 April 2018. doi:10.1136/tobaccocontrol-2017-054175
- 59 Richardson A, Ganz O, Vallone D. The cigar ambassador: how Snoop Dogg uses Instagram to promote tobacco use. *Tob Control* 2014;**23**:79–80. doi:10.1136/tobaccocontrol-2013-051037

- 60 Cole-Lewis H, Pugatch J, Sanders A, *et al.* Social listening: a content analysis of e-cigarette discussions on Twitter. *J Med Internet Res* 2015;**17**:e243. doi:10.2196/jmir.4969
- 61 Astuti P, Assunta M, Freeman B, *et al.* Raising generation 'A': a case study of millennial tobacco company marketing in Indonesia. *Tob Control* 2018;**27**:e41–9. <http://dx.doi.org/10.1136/tobaccocontrol-2017-054131>
- 62 Soneji S, Pierce JP, Choi K, *et al.* Engagement with online tobacco marketing and associations with tobacco product use among U.S. youth. *J Adolesc Health* 2017;**61**:61–9. doi:10.1016/J.JADOHEALTH.2017.01.023
- 63 Zhu Y. Pro-smoking information scanning using social media predicts young adults' smoking behavior. *Comput Human Behav* 2017;**77**:19–24. doi:10.1016/J.CHB.2017.08.004
- 64 Soneji S, Yang J, Knutzen KE, *et al.* Online tobacco marketing and subsequent tobacco use. *Pediatrics* 2018;**141**:e20172927. doi:10.1542/peds.2017-2927
- 65 Cavazos-Rehg PA, Krauss MJ, Spitznagel EL, *et al.* Hazards of new media: youth's exposure to tobacco ads/promotions. *Nicotine Tob Res* 2014;**16**:437–44. doi:10.1093/ntr/ntt168
- 66 Dunlop S, Freeman B, Perez D. Exposure to internet-based tobacco advertising and branding: results from population surveys of Australian youth 2010-2013. *J Med Internet Res* 2016;**18**:e104. doi:10.2196/jmir.5595
- 67 Gwon SH, DeGuzman PB, Kulbok PA, *et al.* Density and proximity of licensed tobacco retailers and adolescent smoking. *J Sch Nurs* 2017;**33**:18–29. doi:10.1177/1059840516679710
- 68 Henriksen L, Feighery EC, Schleicher NC, *et al.* Is adolescent smoking related to the density and proximity of tobacco outlets and retail cigarette advertising near schools? *Prev Med* 2008;**47**:210–4. doi:10.1016/j.ypmed.2008.04.008
- 69 Scully M, McCarthy M, Zacher M, *et al.* Density of tobacco retail outlets near schools and smoking behaviour among secondary school students. *Aust N Z J Public Health* 2013;**37**:574–8.
- 70 Ribisl KM, Luke DA, Bohannon DL, *et al.* Reducing disparities in tobacco retailer density by banning tobacco product sales near schools. *Nicotine Tob Res* 2017;**19**:239–44. doi:10.1093/ntr/ntw185
- 71 Institute for Global Tobacco Control. Technical report on tobacco marketing at the point-of-sale in Nairobi, Kenya: product display, advertising, and promotion around schools. Baltimore: 2016. <http://www.takeapart.org/tiny-targets/>
- 72 The Network for Consumer Protection. How Pakistan Tobacco Company and Philip Morris Pakistan are targeting children. Islamabad: 2016.
- 73 Institute for Global Tobacco Control. Technical report on tobacco marketing at point-of-sale in Dhaka, Bangladesh: product display, advertising, and promotion around secondary schools. Baltimore: 2016. <http://www.takeapart.org/tiny-targets/>
- 74 African Tobacco Control Alliance, Uganda National Health Consumers' Organisation. Big tobacco tiny targets. Tobacco industry targets schools in Uganda. 2016. <http://www.takeapart.org/tiny-targets/>

- 75 World Health Organization, International Agency for Research on Cancer. IARC monographs on the evaluation of carcinogenic risks to humans. Volume 89: smokeless tobacco and some tobacco-specific N-nitrosamines. Lyon: 2007. <http://monographs.iarc.fr/ENG/Monographs/vol89/mono89.pdf>
- 76 Agaku IT, Ayo-Yusuf OA, Vardavas CI, *et al.* Predictors and patterns of cigarette and smokeless tobacco use among adolescents in 32 countries, 2007-2011. *J Adolesc Health* 2014;**54**:47–53. doi:10.1016/j.jadohealth.2013.07.037
- 77 Tomar S. Is use of smokeless tobacco a risk factor for cigarette smoking? The U.S. experience. *Nicotine Tob Res* 2003;**5**:561–9. doi:10.1080/1462220031000118667
- 78 Severson H, Forrester K, Biglan A. Use of smokeless tobacco is a risk factor for cigarette smoking. *Nicotine Tob Res* 2007;**9**:1331–7. doi:10.1080/14622200701705209
- 79 Watkins SL, Glantz SA, Chaffee BW. Association of noncigarette tobacco product use with future cigarette smoking among youth in the Population Assessment of Tobacco and Health (PATH) Study, 2013-2015. *JAMA Pediatr* 2018;**172**:181. doi:10.1001/jamapediatrics.2017.4173
- 80 O'Connor RJ, Kozlowski LT, Flaherty BP, *et al.* Most smokeless tobacco use does not cause cigarette smoking: results from the 2000 National Household Survey on Drug Abuse. *Addict Behav* 2005;**30**:325–36. doi:10.1016/J.ADDBEH.2004.05.020
- 81 Kakde S, Bhopal RS, Jones CM. A systematic review on the social context of smokeless tobacco use in the South Asian population: Implications for public health. *Public Health* 2012;**126**:635–45. doi:10.1016/J.PUHE.2012.05.002
- 82 Mehrotra R, Sinha D, Szilagyi T. Global smokeless tobacco control policies and their implementation. Noida: 2017. <http://untobaccocontrol.org/kh/smokeless-tobacco/wp-content/uploads/sites/6/2018/04/Global-smokeless-NICPR-19418-1.pdf>
- 83 Sinha DN, Kumar A, Bhartiya D, *et al.* Smokeless tobacco use among adolescents in global perspective. *Nicotine Tob Res* 2017;**19**:1395–6. doi:10.1093/ntr/ntx004
- 84 Ministry of Health and Family Welfare, Government of India. Smokeless tobacco and public health in India: a report. 2016.