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Original Research

The impact of smoke-free policies on smoking at outdoor sports clubs: a qualitative study



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ABSTRACT

Objectives: Smoking may still occur at sports clubs with an outdoor smoke-free policy (SFP). This study aims to map the occurrence of smoking at various sports clubs in the Netherlands and to understand why smoking occurs at some clubs but not at others.

Study design: This was a qualitative design in the form of semistructured interviews.

Methods: Semistructured interviews (n=34) were held online with smoking and non-smoking members of 17 Dutch outdoor sports clubs (in field hockey, korfball, football, and tennis) with an outdoor SFP. Data were analyzed using content analysis.

Results: We identified four situations where smoking still occurred: (1) directly at the entrance, (2) at some distance from the entrance, (3) in particular places on the premises, and (4) in various places or on occasions when alcohol is consumed. Smoking directly at the entrance was most often perceived as a bothersome situation that was difficult to avoid. The occurrence of these situations differed per sports club depending on the scope of the SFP (the comprehensiveness of the SFP and the presence or absence of a smoking area) and factors influencing policy compliance (physical characteristics of the sports club's premises, the presence or absence of children, and several enforcement difficulties).

Conclusion: In some sports clubs, smoking remained common on the premises despite an outdoor SFP. Exposure to second-hand smoke might be reduced by formulating a comprehensive SFP, improving policy compliance also in situations where children are absent, and organizing the enforcement of the policy.

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Introduction

Since the World Health Organization Framework Convention on Tobacco Control entered into force in 2005, many countries have implemented smoke-free policies (SFPs) for workplaces and other indoor public areas. SFPs protect people from exposure to second-hand smoke (SHS), reduce the visibility of smoking and the probability of youth starting to smoke, and normalize the idea that smoking is socially unacceptable. Moreover, SFPs are associated with a decreasing mortality rate in health problems such as acute myocardial infarction. In recent years, SFPs have expanded to outdoor areas such as parks, playgrounds, and sports clubs.

As sports clubs often play a significant role in children's lives, they are pre-eminently a place where children should be protected against smoking.¹⁰ Nowadays, outdoor smoking at sports clubs is not prohibited or restricted by national legislation in the Netherlands, and enforcement of outdoor SFPs is a responsibility of sports clubs themselves. By the end of 2020, about 26% of Dutch sports clubs had voluntarily implemented an outdoor SFP. Implementation of these SFPs is generally reported to go smoothly, and support is high.^{11,12} Nevertheless, a previous Dutch study found a number of situations in which implementation is less than optimal,¹³ that is, when children are not present at the sports clubs and when alcohol is consumed. In addition, some sports clubs experienced a cloud of smoke created by smokers gathering at the entrance. This may affect the actual impact of outdoor SFPs on the occurrence and visibility of smoking at sports clubs.

Despite these few studies on sports clubs, we lack detailed knowledge on why smoking still occurs at sports clubs with an outdoor SFP. A better understanding of issues they are facing with compliance and enforcement may inform implementation strategies such as those suggested for other SFPs. 14,15 Therefore, this

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study aims to achieve this understanding by mapping the occurrence of smoking at various Dutch sports clubs with an outdoor SFP to understand why smoking occurs at some of these clubs but not at others.

Methods

Participants

We included 17 Dutch sports clubs with a partial outdoor SFP (i.e. with exceptions, e.g., smoking is allowed on Sunday; n=8) or total (n=9) outdoor SFP. An outdoor sports club was defined as an association of people formed for the purpose of playing sports together who practice these sports on outdoor premises that are owned or rented by the club. Field hockey, korfball (a popular, originally Dutch sport with similarities to netball and basketball), football, and tennis clubs were included to represent the major outdoor sports in the Netherlands. Sports clubs were eligible for participation if they became smoke free before 2020, as experience with the SFP after 2020 was considered insufficient due to the closure of sports clubs during the COVID-19 pandemic. Furthermore, clubs were eligible if both a smoking and a non-smoking member were willing to participate.

Using a registry of smoke-free sports clubs from the Dutch Heart Foundation, a selection could be made of 986 potential eligible sports clubs based on two of the three inclusion criteria (type of sport and year of implementation of the SFP). We approached the chairman or secretary of those 986 sports clubs by email or via a contact form on their website. Contact was made with 46 sports clubs, of which 15 clubs indicated they did not want to participate. The main reasons for non-participation were lack of time (n = 5), lack of interest (n = 4), and not being able to find respondents (n = 3). Of the 31 sports clubs that expressed interest in participating, we selected 17 clubs that differed in terms of type of sports, region, and degree of urbanization. Table 1 presents the characteristics of the included sports clubs.

Procedure

Semistructured interviews were held online with members of sports clubs to explore their perceptions regarding smoking at their

 Table 1

 Characteristics of the participating sports clubs.

Characteristic	Sports clubs (n)	
Type of sports		
Field hockey	5	
Korfball	2	
Soccer	6	
Tennis	4	
Size (number of members)		
<250	2	
250-500	4	
500-1000	6	
1000-1500	3	
>1500	2	
Degree of urbanization		
Highly urbanized region	7	
Urbanized region	4	
Moderately urbanized region	_	
Rural region	2	
Highly rural region	4	
Year of implementation of outdoor SFP		
2016	1	
2017	2	
2018	6	
2019	8	

sports club. The interview guide aimed to explore two problematic situations identified in a previous study: (1) smoking at the entrance of the sports club and (2) smoking when alcohol is involved, ¹³ as we intended to obtain better insight into why these situations occur at some clubs but not at others. The interview guide (see Appendix I) was pilot tested and reviewed by all authors. Interviews were conducted by the first author. They were audio recorded and lasted between 11 and 47 min (median 25 min). All respondents signed an informed consent form and completed a short questionnaire about their gender, age, function within the sports club, and smoking status. A total of 34 respondents participated in the study, with a mean age of 42.6 years (range 20-74). Characteristics of the included respondents are presented in Table 2. In addition, size of the sports club (number of members), degree of urbanization (number of addresses/km²), and implementation year of the SFP were noted. Respondents received a €35 gift voucher for their participation. The Medical Ethics Review Committee of the Academic Medical Center confirmed that the Dutch Medical Research Involving Human Subjects Act (WMO) did not apply to this study and that an official approval was not required (W20_318 # 20.369).

Analysis

Interviews were transcribred verbatim and analyzed using MAXQDA (VERBI Software). ¹⁶ Content analysis, a research method used to interpret meaning from the context of text data, was applied. ¹⁷ First, we identified and coded passages that dealt with the occurrence of smoking. Second, we identified and coded passages that provided information on reasons why smoking did or did not occur. By identifying similar passages, we made a categorization of smoking situations and of factors contributing to these situations. Coding was conducted by the first author, and the second author coded five transcripts in parallel. Any inconsistencies regarding codes were discussed until consensus was reached. Several discussions were held with all authors regarding the appropriateness and categorization of the coded passages and the grouping of the codes into overarching themes.

Results

In general, most respondents reported that the majority of club members do not smoke and that the outdoor SFP is generally accepted. Nevertheless, we also identified four situations in which

Table 2Characteristics of the participating respondents.

Characteristic	Respondents		Of which smokers ^a	
	n = 34	%	n = 17	%
Gender				
Female	10	29.4	4	40.0
Male	24	70.6	13	54.2
Function ^b				
Board member	14	41.2	10	71.4
Committee member ^c	7	20.6	4	57.1
Trainer/coach	7	20.6	5	71.4
Playing member	17	50.0	9	52.9
Parent	2	5.9	1	50.0
Other ^d	3	8.8	3	100.0

^a Smokers were defined as daily smokers, and non-smokers were defined as non-daily smokers and non-smokers.

^b Some respondents had multiple functions; as a result, the total numbers do not add up to 34.

^c Members of bar committee, technical committee, tournament committee etc.

^d Non-playing members and volunteers.

some people still smoke at the sports club. In this section, we will first describe these four situations, paying particular attention to smoking at the entrance because this was perceived as the most bothersome situation. Thereafter, we will discuss why smoking occurs at some clubs but not at others.

Four situations of current smoking

Respondents described four situations in which people still smoked. At half of the sports clubs, people smoked at the entrance of the sports club. At a few sports clubs, people smoked at some distance from the entrance (e.g. the parking lot or a forest next to the sports club). At a third of the sports clubs, people smoked in particular places on the sports club's premises, for example, near the clubhouse, somewhere out of sight of the fields, or in a designated smoking area. Finally, at half of the sports clubs, people smoked in various places or on occasions where alcohol was consumed, especially later in the evening close to the clubhouse or on the terrace.

Especially smoking at the entrance resulted in several difficulties. First, it was perceived as a bad example to youth passing by on their way to the sports club. Second, due to a large distance between the entrance and the clubhouse, sports clubs were not always able to see disruptive behavior of smokers at the entrance, such as excessive drinking or yelling. Third, neighbors of sports clubs complained about people smoking and drinking at the entrance.

The problem is that they order large cans of beer, take them outside, and stand at the entrance with the whole team. Every ten minutes a new player gets a can and walks to the entrance. You just don't want a lot of people on the streets if you're in a neighborhood; that's just a nuisance. [Respondent 11-2, football, smoker]

Finally, it was felt difficult to interfere with smoking outside the sports club's premises. Because this is municipal land, sports clubs' members felt that they had no the authority to interfere.

Respondents mentioned two reasons that may explain why smoking occurs at some clubs but not at others. First, the scope of the outdoor SFP may be too limited. Second, compliance with the outdoor SFP was affected in several ways. Both reasons are discussed below.

The scope of the outdoor SFP

The comprehensiveness of the outdoor SFP

Sports clubs differed in the comprehensiveness of their outdoor SFP. Some sports clubs implemented a total outdoor SFP, that is, smoking was not allowed on the entire premises. At these clubs, people smoked at the entrance because this was the only smoking area permitted by the sports club. In contrast, other sports clubs implemented a partial outdoor SFP, with smoking rules for specific times or places. For example, at some sports clubs, smoking was prohibited only during youth training and competitions. Respondents mentioned that outside these hours/days (e.g. in the evening, on Sunday), alcohol is often consumed, prompting some people to smoke on the sports club's premises.

The presence or absence of a smoking area

According to respondents, smoking still occurred at their sports club because a smoking area was facilitated on the premises (e.g. near the clubhouse or in a secluded spot). Other sports clubs arranged a smoking facility at the entrance (e.g. a smoking pole or drop-pit), as they anticipated that people would smoke there or wanted to prevent smokers from throwing their cigarette butts on

the ground. In contrast, other sports clubs did not facilitate a smoking area at the entrance, as this could negatively affect the sports club's appearance, cause complaints from the neighborhood, and force people to walk through a "cloud of smoke" when entering the sports club.

Not facilitating a smoking area did not necessarily mean that people did not smoke. To illustrate, one respondent mentioned that smokers themselves arranged a facility at the entrance in which they disposed of their cigarette butts. Other respondents mentioned that people smoked secretly on the premises in places out of sight.

Factors influencing compliance with the outdoor SFP

Respondents mentioned three factors that may influence whether people comply with the SFP: (1) physical characteristics of the sports club's premises, (2) the presence or absence of children, and (3) a lack of enforcement.

Physical characteristics of the sports club's premises

Respondents mentioned a number of physical characteristics that influenced compliance with the SFP. The distance to a smoking area appeared to play an important role. For example, smokers did not walk to the entrance when this was considered too far from the clubhouse. In this case, they sought opportunities to smoke unseen on the club's premises. With regard to smoking at the club's entrance, respondents at some clubs mentioned that people tend to smoke at some distance from the entrance, as they could relax there in an attractive environment such as near a forest.

For example, I now smoke in a place where nobody sees me. For example near the kitchen, I can get there quite easily, smoke my cigarette, and go back inside. The place is no secret; it is known by now among smokers that you can just smoke a cigarette there. [Respondent 4-2, football, smoker]

The presence or absence of children

According to most respondents, the SFP was enforced and complied with when many youth members were present at the sports club. Due to the common understanding that children should be protected against smoking, smokers moved out of their sight by smoking in a smoking area. However, the absence of children also had its influence on compliance with the SFP.

But as soon as there are fewer children and one person decides not to walk to the smoking area anymore, then nobody complies with the rules anymore. [Respondent 10-1, hockey, non-smoker]

Furthermore, the absence of children appeared to be an important condition for decreased compliance with the SFP when alcohol was consumed. Consuming alcohol often occurred when there were no children present at the sports club (e.g., late at night or on adult competition days). Respondents argued that it was not solely the drinking of alcohol itself, but also the simultaneous absence of children that created a lenient attitude toward smoking.

A lack of enforcement

At a number of sports clubs, the outdoor SFP was not always enforced. Many respondents argued that no official arrangements were made about enforcement. At most sports clubs, board members took responsibility for confronting smokers. Moreover, respondents mentioned that those responsible for enforcement were not always present, could not have a constant eye on everyone, or

were sometimes too busy with other tasks. Furthermore, sports clubs did not always have the financial resources or enough volunteers or did not want to burden their volunteers with the task of enforcement.

What often happens is that people walk away from the crowd around the clubhouse to smoke there. The chance that at that moment the chairman will walk around the clubhouse is not very high. So, he can't act on it, because he can't see it. [Respondent 8-2, hockey, smoker]

A general problem was that people found it annoying to confront smokers, particularly when alcohol was involved, and people tended to forget about the smoking rules. Furthermore, when alcohol was consumed late at night, togetherness and sociability were considered more important than enforcing the SFP.

Finally, respondents mentioned that enforcement was difficult, as the outdoor SFP was interpreted as a kind of request not to smoke instead of a smoking ban. No consequences could be imposed in the event of repeated violations.

Discussion

Key findings

We identified four situations in which smoking still occurred at sports clubs with an outdoor SFP: directly at the entrance, at some distance from the entrance, in particular places on the sports club's premises, and in various places or occasions where alcohol is consumed. The occurrence of these situations differed per sports club depending on the scope of the SFP and factors affecting compliance with the SFP.

Interpretation of findings

Smoking visibility and SHS exposure may increase under some of the identified situations, especially smoking at the entrance and smoking on the clubs' premises during alcohol consumption. Although the hazard of exposure to SHS in outdoor areas has been disputed, ¹⁸ studies reported substantial levels of SHS in outdoor settings, ^{19–22} and exposure to SHS has no safe threshold.^{23–26} Moreover, seeing role models (e.g. coaches, trainers, parents) smoke at the sports club may normalize smoking and increase smoking among the youth.^{27–29} Similarly, seeing friends or team members smoke might increase social pressure to conform with this behavior.³⁰

Smoking at the entrance was perceived as a particularly bothersome situation. This unintended consequence of implementing an SFP has been reported in other settings, such as workplaces, hospitals, and schools. The settings are entrances may give visitors a poor impression, increase smoking debris, and undermine the message of an SFP. It is therefore important to identify solutions to resolve this recurrent problem. Previous studies have suggested expanding SFPs to entrance areas. Our findings underline that there is no one-size-fits-all solution; such an expansion needs tailoring to the local physical and legal environment.

The occurrence of smoking was related to the presence or absence of children at the sports club. The child protection argument is the strongest reason for sports clubs to implement an SFP, and support for an SFP is higher in settings where many children are present.^{35–37} Yet, attention should also be paid to situations in which children are not present at the sports clubs. Smoking debris can trigger children to think about smoking.³⁸ It is therefore necessary to explore other motivators for clubs to adopt an SFP and for people to comply with the SFP even when children are absent.

At some clubs, smoking still occurred due to a lack of consistent enforcement. Currently, Dutch sports clubs are responsible for the enforcement of the SFP themselves. Sports clubs are associations based on voluntary work and social bonding, and most members participate in sports clubs to socialize with other club members.^{39,40} The desire to socialize may weaken enforcement, as people might feel uncomfortable confronting fellow club members about their smoking behavior.⁴¹ However, recent research found that confronting smokers in a smoke-free area generally yields positive responses and may increase compliance.⁴² The example of bans on indoor places has shown that high adoption and compliance rates are dependent on binding national legislation together with appropriate enforcement.⁴³ This emphasizes the importance of developing strategies for friendly but consistent enforcement of an outdoor SFP.

Possible limitations

Two limitations should be considered when interpreting our results. First, of 986 sports clubs that were initially approached to participate in our study, only 4.7% responded. Possibly, this is largely due to the fact that sports clubs—which are mostly run by volunteers—are hard to reach in practice. Many of our emails may not have been read at all. However, the response might also relate to the sports clubs' perspectives regarding the SFP. Consequently, the clubs that did respond may be those that have more positive experiences regarding the implementation and impact of the SFP. Second, we only interviewed two members of each club. A larger number of respondents might have given a more detailed view of the situation at each club. However, in general, the two respondents were found to voice similar experiences and views. Third, we were unable to provide a quantitative estimate of the occurrence of situations in which smoking occurred and the intensity of smoking on these occasions. Such an overview would complement the present study by demonstrating the extent to which club members and visitors are still exposed to smoking despite the outdoor SFP.

Implications

Our findings suggest several ways in which sports clubs can ensure their SFPs can be more effective in preventing smoking on their premises. First, entrances of sports clubs should be included in the implementation of SFPs, for example, by using signs that demarcate that the entrance is smoke free. For this, sports clubs might need to collaborate with municipalities that own the terrain outside the sports clubs' premises. Second, SFPs should include an enforcement strategy that clearly defines who is responsible for enforcement and includes advice on how to confront fellow club members who smoke. Finally, compliance with the outdoor SFP may improve if clubs do not focus solely on the child protection argument but include other arguments such as avoiding SHS and helping smokers to quit. With regard to the latter, sports clubs can support members who want to quit smoking, for example, in collaboration with local sports coaches or national smoking cessation initiatives.

Conclusion

The implementation of an outdoor SFP does not always result in an entirely smoke-free sports environment. We identified a number of situations in which smoking may still occur depending on the comprehensiveness of the SFP and several factors that influence policy compliance. Exposure to SHS might be reduced by formulating a comprehensive SFP, increasing policy compliance at times

when children are absent, and organizing the enforcement of the policy.

Author statements

Ethical approval

The Medical Ethics Review Committee of the Academic Medical Center confirmed that the Dutch Medical Research Involving Human Subjects Act (WMO) did not apply to this study and that an official approval was not required (W20_318 # 20.369).

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Competing interests

The authors have no competing interests to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2022.10.020.

References

- WHO. WHO framework convention on tobacco control. Geneva: World Health Organization; 2003.
- World Health Organization. Global progress report on implementation of the WHO Framework convention on tobacco control. https://www.who.int/fctc/ reporting/summary_analysis/en/, 2007. [Accessed 9 October 2021].
- Faber T, Kumar A, Mackenbach JP, Millett C, Basu S, Sheikh A, et al. Effect of tobacco control policies on perinatal and child health: a systematic review and meta-analysis. *Lancet Public Health* 2017;2(9):437. https://doi.org/10.1016/ S2468-2667(17)30144-5.
- Frazer K, Callinan JE, McHugh J, van Baarsel S, Clarke A, Doherty K, et al. Legislative smoking bans for reducing harms from secondhand smoke exposure, smoking prevalence and tobacco consumption. *Cochrane Database Syst Rev* 2016;2(2). https://doi.org/10.1002/14651858.CD005992.pub3.
- Hopkins DP, Razi S, Leeks KD, Priya KG, Chattopadhyay SK, Soler RE, Task Force on Community Preventive Services. Smokefree policies to reduce tobacco use. a systematic review. Am J Prev Med 2010;38(2):275–89. https://doi.org/10.1016/ j.amepre.2009.10.029.
- Siegel M, Albers AB, Cheng DM, Hamilton WL, Biener L. Local restaurant smoking regulations and the adolescent smoking initiation process: results of a multilevel contextual analysis among Massachusetts youth. *Arch Pediatr Adolesc Med* 2008;**162**(5):477–83. https://doi.org/10.1001/archpedi.162.5.477.
- Wakefield M, Forster J. Growing evidence for new benefit of clean indoor air laws: reduced adolescent smoking. *Tobac Control* 2005;14(5):292. https://doi.org/10.1136/tc.2005.013557.
- Gao M, Li Y, Wang F, et al. The effect of smoke-free legislation on the mortality rate of acute myocardial infarction: a meta-analysis. BMC Publ Health 2019;19: 1269. https://doi.org/10.1186/s12889-019-7408-7.
- World Health Organization. Global progress report on implementation of the WHO Framework convention on tobacco control. https://www.who.int/fctc/ reporting/summary_analysis/en/, 2018. [Accessed 9 October 2021].
- Kelly B, King L, Bauman AE, Baur LA, Macniven R, Chapman K, et al. Identifying important and feasible policies and actions for health at community sports clubs: a consensus-generating approach. J Sci Med Sport 2014;17(1):61–6. https://doi.org/10.1016/j.jsams.2013.02.011.
- Garritsen HH, Rozema AD, van de Goor I, Kunst AE. Smoke-free sports in The Netherlands: why most sports clubs have not adopted an outdoor smoke-free policy. Int J Environ Res Publ Health 2021;18(5):2454. https://doi.org/10.3390/ ijerph18052454.
- Garritsen HH, Distelvelt RR, Olsen IG, van de Goor IAM, Kunst AE, Rozema AD. Adolescents' support for an outdoor smoke-free policy at sports clubs in The Netherlands. *Tob Prev Cessation* 2021;7:40. https://doi.org/10.18332/tpc/ 134612. May.
- 13. Garritsen HH, Rozema AD, Am van de Goor I, Kunst AE. Implementation of an outdoor smoke-free policy at sports clubs: critical situations and determinants influencing implementation. *Int J Drug Pol* 2021;**92**:103129. https://doi.org/10.1016/j.drugpo.2021.103129.

- Zhou L, Niu L, Jiang H, Jiang C, Xiao S. Facilitators and barriers of smokers' compliance with smoking bans in public places: a systematic review of quantitative and qualitative literature. *Int J Environ Res Publ Health* 2016;13(12):1228. https://doi.org/10.3390/jierph13121228.
- Kegler MC, Lea J, Lebow-Skelley E, Lefevre AM, Diggs P, Haardi Rfer R. Implementation and enforcement of smoke-free policies in public housing. *Health Educ Res* 2019;34(2):234

 –46. https://doi.org/10.1093/her/cyy053.
- 16. VERBI Software. MAXQDA analyticspro. Berlin: VERBI; 2020.
- 17. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005;**15**(9):1277–88. https://doi.org/10.1177/1049732305276687.
- Klepeis NE, Ott WR, Switzer P. Real-time measurement of outdoor tobacco smoke particles. J Air Waste Manag Assoc 2007;57(5):522–34. https://doi.org/ 10.3155/1047-3289.57.5.522. 1995.
- Sureda X, Fernández E, López MJ, Nebot M. Secondhand tobacco smoke exposure in open and semi-open settings: a systematic review. *Environ Health Perspect* 2013;121(7):766–73. https://doi.org/10.1289/ehp.1205806.
- Sureda X, Bilal U, Fernández E, Valiente R, Escobar FJ, Navas-Acien A, et al. Second-hand smoke exposure in outdoor hospitality venues: smoking visibility and assessment of airborne markers. *Environ Res* 2018;**165**:220–7. https://doi.org/10.1016/j.envres.2018.04.024.
- 21. Cameron M, Brennan E, Durkin S, Borland R, Travers MJ, Hyland A, et al. Secondhand smoke exposure (PM2.5) in outdoor dining areas and its correlates. *Tobac Control* 2010;**19**(1):19–23. https://doi.org/10.1136/tc.2009.
- Henderson E, Continente X, Fernández E, Tigova O, Cortés-Francisco N, Gallus S, et al., TackSHS project investigators. Secondhand smoke exposure in outdoor children's playgrounds in 11 European countries. *Environ Int* 2021;**149**:105775. https://doi.org/10.1016/j.envint.2020.105775.
- World Health Organization. (2021, 26 July). Tobacco. Accessed September 22, 2021. https://www.who.int/news-room/fact-sheets/detail/tobacco
- Flouris AD, Vardavas CI, Metsios GS, Tsatsakis AM, Koutedakis Y. Biological evidence for the acute health effects of secondhand smoke exposure. Am J Physiol Lung Cell Mol Physiol 2010;298(1):L3-12. https://doi.org/10.1152/ aiplung.00215.2009.
- IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. Tobacco smoke and involuntary smoking. IARC Monogr Eval Carcinog Risks Hum 2004:83:1–1438.
- Office on Smoking and Health (US). The health consequences of involuntary exposure to Tobacco smoke: a report of the surgeon general. Centers for Disease Control and Prevention (US); 2006.
- Rodriguez D, Romer D, Audrain-McGovern J. Beliefs about the risks of smoking mediate the relationship between exposure to smoking and smoking. *Psychosom Med* 2007;69(1):106–13. https://doi.org/10.1097/PSY. 0b013e31802e0f0e.
- 28. Alves J, Perelman J, Soto-Rojas V, Richter M, Rimpelä A, Loureiro I, et al. The role of parental smoking on adolescent smoking and its social patterning: a cross-sectional survey in six European cities. *J Pub Health (Oxford, England)* 2017;**39**(2):339–46. https://doi.org/10.1093/pubmed/fdw040.
- Poulsen LH, Osler M, Roberts C, Due P, Damsgaard MT, Holstein BE. Exposure to teachers smoking and adolescent smoking behaviour: analysis of cross sectional data from Denmark. *Tobac Control* 2002;11(3):246-51. https:// doi.org/10.1136/tc.11.3.246.
- Schreuders M, Nuyts P, van den Putte B, Kunst AE. Understanding the impact of school tobacco policies on adolescent smoking behaviour: a realist review. Soc Sci Med 2017;183:19–27. https://doi.org/10.1016/j.socscimed.2017.04.031. 1982.
- Parry Odette, Platt Stephen, Thomson Carolyn. Out of sight, out of mind: workplace smoking bans and the relocation of smoking at work. *Health Promot Int* 2000;15. https://doi.org/10.1093/heapro/15.2.125.
- 32. Rozema AD, Mathijssen J, van Oers H, Jansen M. Evaluation of the process of implementing an outdoor school ground smoking ban at secondary schools. *J Sch Health* 2018;**88**(11):859–67. https://doi.org/10.1111/josh.12692.
- Watts AW, Lovato CY, Card A, Manske SR. Do students' perceptions of school smoking policies influence where students smoke?: Canada's youth smoking survey. CCC (Cancer Causes Control) 2010;21(12):2085–92. https://doi.org/ 10.1007/s10552-010-9627-1.
- Serafin A, Franklin S, Mehta R, Crosby S, Lee D, Edlin B, et al. NHS patients, staff, and visitor viewpoints of smoking within a hospitals' ground: a qualitative analysis. BMC Publ Health 2014;14:1015. https://doi.org/10.1186/1471-2458-14.1015
- 35. Thomson G, Wilson N, Collins D, Edwards R. Attitudes to smoke-free outdoor regulations in the USA and Canada: a review of 89 surveys. *Tobac Control* 2016;**25**(5):506–16. https://doi.org/10.1136/tobaccocontrol-2015-052426.
- Thomson G, Wilson N, Edwards R. At the frontier of tobacco control: a brief review of public attitudes toward smoke-free outdoor places. *Nicotine Tob Res*: Off J Soc Res Nicotine Tob 2009; 11(6):584–90. https://doi.org/10.1093/ntr/ntp046.
- Sureda X, Fernández E, Martínez-Sánchez JM, Fu M, López MJ, Martínez C, et al. Secondhand smoke in outdoor settings: smokers' consumption, non-smokers' perceptions, and attitudes towards smoke-free legislation in Spain. BMJ Open 2015;5(4):e007554. https://doi.org/10.1136/bmjopen-2014-007554.
- 38. Schuck K, Otten R, Engels RC, Kleinjan M. The role of environmental smoking in smoking-related cognitions and susceptibility to smoking in never-smoking 9-

- 12 year-old children. *Addict Behav* 2012;**37**(12):1400–5. https://doi.org/10.1016/j.addbeh.2012.06.019.
- 39. Skille E, Østerås J. What does sport mean to you? Fun and other preferences for adolescents' sport participation. *Crit Publ Health* 2011;**21**(3):359–72.
- Geidne S, Quennerstedt M. Youth perspectives on what makes a sports club a healthpromoting setting-viewed through a salutogenic settings-based lens. *Int J Environ Res Publ Health* 2021;**18**(14):7704. https://doi.org/10.3390/ijerph18147704.
- M Seitz C, Lawless J, Cahill S, O' Brien A, Coady C, Regan C. The adoption, implementation, and impact of smoke-free policies among Gaelic athletic association clubs in Ireland: a qualitative study. *Int J Environ Res Publ Health* 2020;17(5):1785. https://doi.org/10.3390/ijerph17051785.
- 42. Boderie NW, Breunis LJ, Biney I, Borsboom J, Ter Braake JG, Koolen L, et al. Smokers' responses to being addressed when smoking in an outdoor voluntary smoke-free zone: an observational study. *Tob Prev Cessation* 2021;**7**:65. https://doi.org/10.18332/tpc/142498.
- 43. Borland R, Yong HH, Siahpush M, Hyland A, Campbell S, Hastings G, et al. Support for and reported compliance with smoke-free restaurants and bars by smokers in four countries: findings from the International Tobacco Control (ITC) Four Country Survey. *Tobac Control* 2006;15(Suppl 3):iii34–41. https://doi.org/10.1136/tc.2004.008748.