



Children's right to smoke-free air: Public support in Norway for banning smoking in vehicles with children present



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ABSTRACT

Background: Children have a statutory right to a smoke-free environment, and tobacco control advocates are now considering regulation of smoking behavior in the private sphere. The Norwegian Institute of Public Health has investigated the support for a ban on smoking in cars with children compared to other possible extensions of the tobacco act among the Norwegian public.

Material and methods: A nationwide representative survey (CAWI) of 5543 participants was conducted in 2014–2015. Respondents were asked to consider several possible new tobacco control measures, through self-reported ranking on 5-point scales for each measure. Multiple logistic regression models were applied to control for confounders (i.e. smoking behavior) for the tendency to state full support.

Results: A majority (78 % of all respondents, 61.8% of daily smokers) supported a proposal prohibiting smoking in cars when children are present. This proposal received substantially more support than bans on private balconies, in parks and at public transport stops and work entrances. Full support for the latter proposals varied between 39.9% and 58.1% (between 2.7% and 16.8% among smokers). Differences by smoking status were maintained after multiple controls.

Interpretation: The strong endorsement of the proposal (also provided by the majority of current smokers) suggests high legitimacy and compliance, which means that an implementation could be introduced without serious enforcement problems.

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1. Introduction

The cigarette is the only legal consumer good that kills those who use the product for its intended purpose. In most Western countries, the cigarette is therefore subject to strict regulation in terms of availability and areas of use, not least in the interests of children. Preventing smoking initiation among children and adolescents and protecting these same groups from second-hand smoke have long been, and remain, important tobacco policy objectives [1,2]. Nevertheless, children and young people still take up smoking. Many children also continue to suffer under parents' and other adults' smoking.

Governments have accordingly gone to great lengths to implement measures to restrain smoking in public venues. The intention is both to protect non-smoking employees and visitors at the venues from second-hand smoke and to generally drive smoking prevalence down by signalling that smoking is a denormalised behaviour. In Norway, which is among the countries with the

strongest tobacco regulations in the world [3], recent amendments to the Tobacco Act have involved bans on smoking at public entrances and health institutions, a complete tobacco ban in kindergarten premises and outdoor areas, and tobacco-free school time for all students in primary and secondary schools. Given that all children now have a statutory right to a smoke-free environment, these new provisions have aimed to prevent children's exposure to tobacco products, to make more social arenas smoke-free and to strengthen protection of children from passive smoking.

Despite the Norwegian health authorities having made these steps to protect children and young people from passive smoking in public places, there is still no regulation of the home environment, where children are presumably most exposed to second-hand smoke.

1.1. Children's vulnerability to second-hand smoke

According to the Royal College of Physicians (RCP), about 2 million children in the UK are regularly exposed to second-hand smoke [2]. In Norway, estimates suggest that about 100,000 children are exposed to second-hand smoke in the home every day [4]. Children are particularly vulnerable to the harmful substances in cigarette

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smoke [2]. This is because children breathe faster than adults and because some of the toxic chemicals in second-hand smoke is secreted more slowly in children. Children are also vulnerable to tobacco smoke because their lungs and immune systems are still developing. In addition to an increased risk of respiratory diseases, children who are exposed to second-hand smoke have higher probability of frequent infections of the middle ear. Passive smoking also entails an increased risk of SIDS [2,5–7]. The scientific evidence indicates that there is no risk-free level of exposure to tobacco smoke; even brief exposure can, for instance, elicit stronger and more frequent seizures in children who already have asthma [7].

1.2. Proposal to ban smoking in cars with children present

As a strategy to further protect children from second-hand smoke, tobacco control advocates are now considering regulation of smoking behaviour extending into the private sphere. Such measures involve infringements on privacy and possible enforcement challenges have often made health politicians hesitant to introduce them. One such measure is prohibition of smoking in any vehicle [2]. This is because the concentration of harmful substances from tobacco smoke in such a confined space as the interior of cars can be very high. Even with ventilation, the amount of tobacco smoke in a passenger car rises to hazardous level [8,9].

Bans on smoking in cars when children are present are already in place in France, Italy, Australia, South Africa, Bahrain, and parts of the US and Canada. In October 2014, the English health authorities, too, introduced a ban on smoking in enclosed vehicles with passengers under 18 years. Violation of the prohibition was to be sanctioned by fines, but, in practice, the English police have not been fining infringements [10]. Many other countries are currently considering this measure (like Ireland, Finland, Israel, Netherlands and Taiwan), even if this ban is not part of the general recommendations in the WHO Framework Convention on Tobacco Control.

In Norway, in 2012, the Norwegian Medical Association [11], with support from the Children's Ombudsman, proposed banning smoking in vehicles when children are present. The proponents pointed to Article 24 of the UN Convention of the Rights of the Child, which urges member states to "take all effective and appropriate measures with a view to abolishing traditional practices prejudicial to the health of children" [12]. While the proponents intended the measure to operate at the normative level, and not be enforced with sanctions, other organisations, such as the National Health Association [13] and the Worker's Youth league [14], believe that breaches of the rule should be sanctioned to increase compliance – that is, fined on a par with mobile phone use in cars.

The likely spread of enforcement issues relating to a possible ban, and indeed the overall legitimacy of the measure, will also depend on attitudes towards such legislation among the general public. In the UK, Italy and Australia, public opinion was highly supportive in advance [15,16,8]. Support for prohibiting smoking in vehicles has tended to be lower in the US [17,18]. One North American study found that the support for a smoking ban in cars was lowest among smokers with high smoking intensity and no quit plans [18], which fits well with resistance towards further smoking restrictions usually being highest among smokers themselves [19–21]. Apart from this, little is known about what influences support of smoking regulations in the private sphere and whether the level of support for the regulation of private premises differs from that for public premises or from overall support for a total ban on smoking ('endgame').

1.3. Research problem

We investigate the Norwegian population's support of the proposal to introduce smoking bans in cars when children are pas-

sengers. To our knowledge, no other scientific studies of public support for this measure in Northern Europe (including the other Nordic countries) have been published – not even from Finland, which has actually decided to ban smoking in cars with children present. More precisely, we analyse how endorsement of the proposal varies by smoking status and different socio-demographic groups. We also compare the support for a ban on smoking in cars with adherence to four other possible measures against smoking (prohibition of smoking on private balconies, in public parks, at all workplace entrances and at public transport stops) and support for an overall sales ban on smoking tobacco in 10 years. By comparing the attitudes to the different access restrictions, we reveal which measures provoke the greatest support and greatest resistance among persons with different experiences of smoking. The degree of support may give an indication of the legitimacy of the measures, and, consequently, the expected compliance and size of enforcement problems in the case of possible introduction. The comparisons also give an indication of popular support for potential future tobacco control measures in regards to regulation of both the public and private spheres.

2. Materials and methods

2.1. Data

Data collection was conducted by IPSOS MMI in December 2014 and January 2015 on behalf of the then Norwegian Institute for Drug Research, now incorporated in the Norwegian Institute of Public Health, and the Ministry of Health. A "mixed mode" design was applied, in which data were collected via both web and smartphone (CAWI) [22].

Survey participants are primarily drawn from IPSOS MMI's web panel of approximately 35,000 participants. Members of the panel were originally contacted randomly by telephone to participate in unique studies, but were also asked whether they were willing to join a web panel for participation in future research projects via the Internet. The recruitment method is called 'double opt-in': it obtained, first, consent to participate in the panel, then, upon recruitment, the respondent filled in a set of background variables. The panel is thus not based on self-selection, but consists of a random sample of individuals who have agreed to participate in surveys. All participants in the panel are currently active members thereof, defined by confirmed active e-mail addresses in the past six months.

In addition, interviews were conducted by mobile platform following population extraction in the 15–30 age group, because this group is somewhat underrepresented in the web panel.

The total sample of 5543 respondents was stratified by gender, age and region, on the basis of a 60-cell matrix of 5000 interviews, based on total population figures from Statistics Norway for the same three variables. 4291 interviews were done in the panel, while 1252 interviews were done by mobile platform. The quotas of gender, age and region were applied both to the panel and the mobile sample, and top up-sampling (refills in cells) was then run to adjust for differential response rates in the cells. This gave an approximately representative sample by gender, age and region. The sample was, however, characterized by a certain overrepresentation of highly educated respondents.

2.2. Measures

Self-reported support for a series of possible future measures against smoking was measured using the following question: 'Several new measures may be relevant for reducing tobacco harms

in society. What view would you take if the authorities were to propose these measures on smoking?

- ban smoking in covered stops or stations for bus, boat, tram, train, taxi and the like;
- ban smoking in all public parks;
- ban smoking at outdoor entrances to all workplaces;
- ban smoking in cars where children are passengers;
- ban smoking on private balconies in cases where it bothers the neighbour
- ban the sale of cigarettes and smoking tobacco in ten years.

For each possible measure, answers were submitted on a five-point Likert scale, from no support (=1) to full support (=5).

2.3. Statistical analysis

Descriptive statistics of the sample were computed, showing mean statistics for age and percentage distributions for all ordinal response categories, among all respondents, as well as for daily smokers, occasional smokers, ex-smokers and never smokers in particular.

Analyses of public support for each measure were provided both in terms of mean scores and percentage distributions, which were used to compare agreement with a ban on smoking in vehicles when children are present with the other four measures against smoking. For analyses of percentages, response categories were grouped into 'no support' (=1, 2), 'partial support' (=3, 4) and 'full support' (=5). Additional bivariate analysis of percentages were computed to assess the relationship between full support for a ban on smoking in cars and full support for an overall sales ban in ten years.

Finally, we used multivariate logistic regression to measure the relationships between a set of independent variables (gender, age recoded into tertiles, region, education level, smoking status) and the odds ratio (OR) for declaring full support for banning smoking in cars when children are present, in covered public transportation stops, in all public parks, at outdoor entrances to all workplaces and on private balconies in cases where it bothers the neighbour. Five models were run, one for each measure.

The analyses were performed using IBM SPSS Statistics 24.

3. Results

3.1. Sample characteristics

The descriptive statistics of the sample are presented in Table 1. 9.9% are daily smokers, 10.3% occasional smokers, 30.9% former smokers, while 48.9% are never-smokers. Compared to the total sample, daily smokers are more often middle-aged, with lower education, while occasional smokers tend to be younger, with higher education level.

3.2. Support for the various bans

The proposal to ban smoking in cars with children present finds considerable support in all social groups. In all, 78% of the population support the measure (Fig. 1). Even among daily smokers, there is a clear majority (61.6%) in favour of such a move. The proposal to ban smoking in cars when children are present has far greater support than the other four proposals to limit access to smoke. Especially great is the difference in support between measures among daily smokers, where only 2.7% fully support a ban on smoking on balconies, 3.3% fully support a ban on smoking in parks, 11.9% fully support a ban on smoking at the entrances of

work places and 16.8% fully support the ban on smoking at public transport stops.

The same patterns in support emerge when mean scores are analysed (Fig. 2). Fig. 2 also shows that the less experience respondents have with smoking, the more they support the measures.

3.3. Controlling for correlates

Compared with daily smokers (reference category), odds ratios for supporting the proposal to ban smoking in cars increase the rarer smoking becomes – occasional smokers (OR = 1.47), former smokers (OR = 2.55), people who had never smoked (OR = 3.02) (Table 2). Women are significantly more likely to support the proposal than men (OR = 1.69), and support for the proposal is significantly higher in all regions in the country compared with the capital region of Oslo. Neither age nor education explain any of the variance in support.

For the other measures, however, there are significant effects also of age and to some extent, education level. The explained variance, too, is higher for these measures.

Support for a ban on smoking in cars is not positively correlated with support for an overall sales ban. Among those fully supporting a ban on smoking in cars, only 34% fully support the proposal of an overall sales ban in ten years (table not shown).

4. Discussion

This study has shown that the proposal to ban smoking in cars when children are present has great support in the Norwegian population (78%). Opposition to this proposal was far lower than that observed for other possible smoking bans. Also among daily smokers – those primarily affected by such a ban – a clear majority was in favour of the intervention (61.6%). This means that daily smokers seem to have acceptance for eliminating smoking in cars when children are present, that the normative support for such a regulation is high and that compliance will also presumably be high. The other four proposals for restricting access to smoking had far less legitimacy and any introduction of these proposals is more likely to be met with non-compliance and enforcement issues.

4.1. Regulation of public versus private premises

The public support in Norway for a 'tobacco endgame' (ban of all sales) is on a level with the rest of Europe [23], and the high support of the ban on smoking in cars indicates that public opinion is not against smoking regulations extending into the private sphere in itself.

The difference in support between the ban on smoking in cars and the ban on smoking on balconies is most likely associated with concerns about whether the proposed measures are considered appropriate (reflecting legitimate concerns) or not. The lower support for bans on balconies, in parks and at public transport stops and work entrances may be related to the fact that these four limitations concern outdoor arenas. Smoking in a car, however, takes place indoors, at best with good ventilation, and suggests different images of the degree of exposure. All proposals would be able to draw on altruistic considerations among daily smokers to refrain from smoking in others' proximity. When children are evoked explicitly in the questioning, as expected, such considerations are even more prominent. This is also shown in a study from New Zealand in 1999, where 53.5% of the sample supported a proposal against smoking in private cars [24]. A general proposal concerning the need for non-smoking whenever children are around, however, received 85.5% support.

The legitimacy of a smoking ban in cars with children present increases further when human rights enter the picture. In Article 24

Table 1
Descriptive statistics of the sample. Percentages (N in parenthesis).

	All respondents	Daily Smokers	Occasional smokers	Ex-smokers	Never smokers
Age (means)	46.6 st.d=17.7	49.9 st.d=14.3	41.2 st.d=16.8	53.7 st.d=16.0	42.6 st.d=17.9
Age (tertiles)					
<=36 years	33.0 (1830)	20.7 (113)	44.4 (254)	18.6 (319)	42.2 (1142)
37–56 years	33.1 (1834)	42.8 (234)	32.3 (185)	31.9 (546)	32.1 (869)
> 57 years	33.9 (1879)	36.6 (200)	23.3 (133)	49.5 (849)	25.7 (697)
Gender					
Men	51.6 (2859)	49.9 (273)	55.4 (317)	53.8 (922)	49.7 (1345)
Women	48.4 (2684)	50.1 (274)	44.6 (255)	46.2 (792)	50.3 (1363)
Region					
Oslo	12.2 (679)	13.0 (71)	16.1 (92)	11.7 (201)	11.6 (315)
East	34.3 (1900)	32.9 (180)	33.7 (193)	32.7 (560)	35.6 (965)
South and West	27.8 (1539)	29.3 (160)	31.6 (181)	25.8 (443)	27.9 (755)
Middle and North	25.7 (1425)	24.9 (136)	18.5 (106)	29.8 (510)	24.9 (673)
Education level					
Primary school	8.1 (450)	12.4 (68)	5.2 (30)	11.0 (189)	6.0 (163)
Secondary school	30.4 (1683)	40.6 (222)	38.3 (219)	28.8 (493)	27.6 (748)
University, lower	30.3 (1677)	24.7 (135)	28.7 (164)	30.8 (528)	31.4 (849)
University, higher	29.3 (1622)	20.8 (114)	24.0 (137)	28.3 (485)	32.7 (886)
No info (missing)	2.0 (111)	1.5 (8)	3.8 (22)	1.1 (19)	2.3 (62)
Smoking status					
Daily smoker	9.9 (547)				
Occasional smoker	10.3 (572)				
Former smoker	30.9 (1714)				
Never smoker	48.9 (2708)				
No info (missing)	0.0 (2)				
N overall=	(5543)	(547)	(572)	(1714)	(2708)

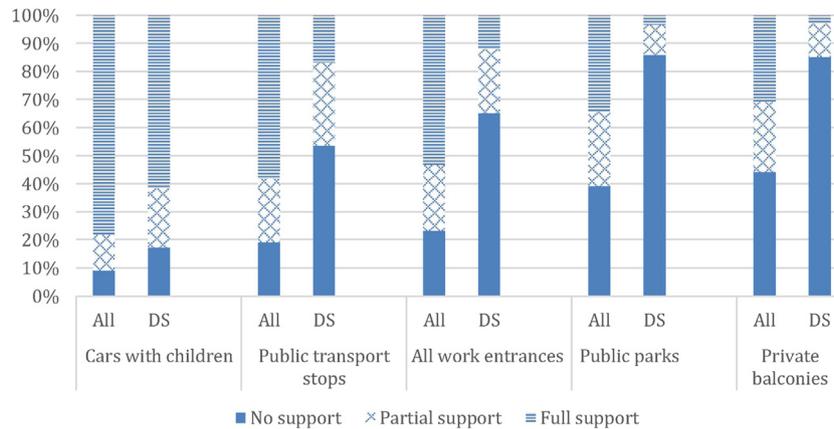


Fig. 1. Public support (in %) of various possible smoking bans. N all respondents = 5541, N daily smokers (DS) = 547.

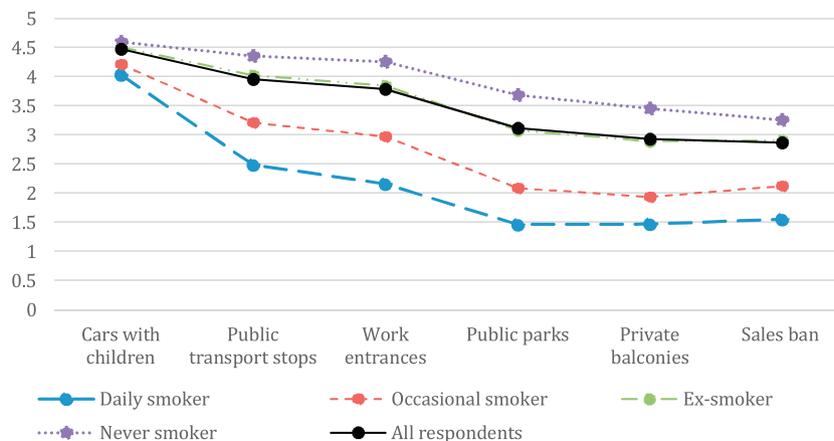


Fig. 2. Mean support of various possible bans, by smoking status.

Table 2
Logistic regression. Adjusted odds ratios (and 95% C.I.s) for declaring full support for various possible smoking bans. Five separate models.

	Cars with children	Public transport stops	Work entrances	Public parks	Private balconies
Gender					
Men (ref.cat)	1	1	1	1	1
Women	1.69*** (1,47–1,92)	1.24*** (1,10–1,39)	1.54*** (1,37–1,73)	1.05 (0,94–1,19)	0.94 (0,83–1,06)
Age					
<= 36 years (ref.cat)	1	1	1	1	1
37–56 years	0.92 (0,78–1,09)	1.25** (1,08–1,45)	1.20* (1,04–1,39)	0.90 (0,78–1,04)	0.99 (0,85–1,15)
> 57 years	1.11 (0,93–1,32)	1.57*** (0,000)	1.26** (1,09–1,47)	0.80** (0,69–0,93)	1.50*** (1,28–1,75)
Region					
Oslo (ref.cat)	1	1	1	1	1
East	1.41** (1,15–1,74)	1.02 (0,84–1,24)	1.10 (0,91–1,34)	1.18 (0,96–1,44)	0.93 (0,76–1,14)
South and West	1.32* (1,07–1,64)	1.09 (0,89–1,33)	1.16 (0,95–1,41)	1.12 (0,91–1,38)	0.81 (0,66–1,00)
Middle and North	1.67*** (1,34–2,09)	1.33** (1,09–1,63)	1.54*** (0,000)	1.20 (0,97–1,48)	1.00 (0,81–1,23)
Education					
Primary (ref.cat)	1	1	1	1	1
Secondary	0.90 (0,69–1,18)	1.02 (0,81–1,28)	0.99 (0,79–1,24)	0.83 (0,65–1,05)	0.82 (0,64–1,04)
University, lower	0.91 (0,70–1,19)	1.34* (1,07–1,69)	1.32* (1,05–1,66)	0.91 (0,72–1,15)	0.90 (0,71–1,14)
University, higher	0.81 (0,62–1,06)	1.18 (0,94–1,49)	1.16 (0,92–1,46)	0.82 (0,64–1,03)	0.86 (0,68–1,09)
Smoking status					
Daily smoker	1	1	1	1	1
Occasional smoker	1.47** (1,14–1,90)	2.87*** (2,15–3,84)	3.11*** (2,25–4,30)	3.68*** (2,15–6,31)	3.51*** (1,93–6,37)
Former smoker	2.55*** (2,06–3,17)	7.14*** (5,58–9,15)	9.08*** (6,87–12,00)	14.85*** (9,17–24,03)	14.85*** (8,79–25,10)
Never smoker	3.02*** (2,46–3,72)	12.87*** (10,06–16,45)	15.13*** (11,48–19,95)	23.85*** (14,79–38,46)	26.58*** (15,78–44,78)
Nagelkerke R ²	.06	.18	.19	.15	.16
N=	(5430)	(5430)	(5430)	(5430)	(5430)

Significance level: * p < 0,05, **p < 0,01, ***p < 0,001.

of the United Nations Convention on the Rights of the Child (commonly abbreviated as the CRC, CROC, or UNCRC), it says that parties shall take all effective and appropriate measures with a view to abolishing traditional practices prejudicial to children's health [12]. It is emphasized that one should minimize foetal and infant mortality and promote the child's healthy development.

In addition to children's health being an entitlement, the high support for the measure and the fact that the explained variance of the multivariate logistic regression controlling for confounders was low, suggest that the measure may be considered as highly legitimate, verging on universally approved (in the sense that no social groups seem to be explicitly against it). However, this assertion may be moderated somewhat.

4.2. Does the "child's best interest" necessarily assume more regulations?

Although Article 3 of the CRC states that the legislature, courts and other bodies shall always have the child's best interests in mind, the article says little about how this should be weighed against other considerations [12]. Law Professor Asbjørn Kjønstad, who was decisive in articulating the original Norwegian Tobacco Act in 1973, claimed in 2011 that the time was ripe to introduce smoking bans in the home environment. The freedom of children who are unprotected must be more important than the freedom of adults who harm children, he argued [25]. This statement was supported by the Norwegian Asthma- and Allergy Association (NAAF), which approved that children should have the statutory right to a smoke-free childhood environment, from the moment of conception. [26]. The Norwegian Children's Ombudsman, too, argued that Norway does not meet the requirements of the CRC and that children have no possibility to choose whether they will let themselves be exposed to parents' and others' tobacco smoke in their own homes or in private vehicles [27].

The prevalence of children being exposed to tobacco smoke in a car is probably quite small, yet serious for those individuals concerned. The exact extent of the problem is unknown, but most probably it affects children in families with low socioeconomic sta-

tus the most, since the proportion of smokers is higher in this group – and increasingly so [28]. In general, the proportion of children who are exposed to second-hand smoke must have decreased in line with the reduction of the proportion of smokers in the population. In addition, studies show that knowledge of health-derogatory effects on children of passive smoking has increased among parents, attitudes to smoke near to children have become more hostile, the proportion of smoke-free homes with children increased from 68% in 1995 to 82% in 2001, while the intensity of exposure during the same period was reduced in homes where parents smoked [29,30].

A survey of Nordic households containing children aged 3 years showed that the prevalence of smoking in cars with children present was low as early as 1995 [31]. It is against this background that we must read the former Norwegian Health Director, who in 2011 claimed that parental practices already were so good that statutory regulation of second-hand smoke in the home and in the car was in fact superfluous [32]. However, it has been argued that some of the observed reduction in the parental reporting of child exposure to second-hand smoke may be due to increasing underreporting of a norm-violating behaviour [31,33]. When self-reported data from smoking parents were adjusted with results from testing of biomarkers for children's nicotine exposure, the Norwegian Institute of Alcohol and Drug Research estimated that about 100,000 children under 14 years are still exposed to second-hand smoke daily [4].

Even so, the current Minister of Health rejects legislation on smoking in the private sphere. A ban modelled on the English measure is not of interest in Norway, the Minister of Health argued in 2015 [34]. This stance was not only based on rejecting the invasion of privacy, a ban on smoking in cars when children are present was also judged as difficult to enforce.

4.3. Obstacles to successful implementation?

As argued in the introduction, the possible harm related to children's exposure to second-hand smoke must be considered as sufficiently serious to justify an intervention by the health author-

ities [2,7]. In line with previous studies from Italy [35] and Spain [36], our study confirms that public opinion support in Europe is currently high for a smoking ban in cars when children are present. Even the tobacco industry appears to regard this regulation as legitimate as it has not opposed a smoking ban in cars when children are present in countries in which this policy has been adopted (as indeed it has opposed other policies, such as plain packaging and display bans).

This leaves policy makers with the issue of enforcement, which may represent a genuine challenge to the successful implementation of a smoking ban in cars. Although compliance may be achievable in the event that the police are provided with the necessary resources to prioritize enforcement, it is doubtful whether politicians will be willing to provide such resources. Enforcement of public health legislation is seldom considered a primary duty of the police.

Given the concerns that smokers already shows for children, as well as the obvious legitimacy of the measure revealed both in this analysis and similar studies from other countries, it is nevertheless possible that a smoking ban in cars when children are present may work via a sort of 'self-imposed' enforcement. If smokers already show consideration to children – and several studies indicate that this is the case [37,38] – they are unlikely to wilfully counteract a law that aims to improve children's welfare. On the contrary, it is reasonable to interpret the daily smokers' strong support for a ban on smoking in cars as a willingness to sacrifice their freedom to smoke in order to protect vulnerable individuals (children) from harm (exposure to toxins from second-hand smoke). Not wanting to violate children's rights, smokers will simply desist from smoking when children are present. As many smokers also feel stigmatized because they have not yet managed to quit [39], it is unlikely that they would want to appear as negative role models for children. Therefore, in practice, they will comply with a ban.

4.4. Continuous support in the future?

Although the current Norwegian government rejects smoking regulations in the private sphere, a bill prohibiting smoking in cars with children may nevertheless be adopted by a prospective government. What may happen to the support for such a ban if the measure were to be realized sometime in the near future? Will it remain at the same level or will it increase? The answer depends largely on what connotations the respondents in our study had in mind when they made their assessment. Many respondents may have related to the possible effects of the measure on preventing health harms of smoking (which is also referred to in the wording of the question – see the methods section above). There is also reason to believe that the interests of children were important to many respondents, since the other measures, which do not mention children explicitly, have significantly lower support. These motivations for supporting tobacco prevention and regulation are unlikely to change much in the immediate future. If the measure is adopted, however, the basis for expressed support may change among smokers themselves. Whereas today it is "non-binding" for smokers to express their support of the measure, its actual implementation may arouse greater resistance among smokers, based on feelings of reactance and a sense of deprivation of freedom in the private sphere. On the other hand (and as mentioned previously), it is just as likely that many smokers are already considerate in abstaining from smoking in cars where children are passengers [37,38]. If so, smokers may happily come to support the regulation. Also, the fact that support for smoking-regulatory measures tends to increase over time, even among smokers themselves [40], suggests that enforcement problems are unlikely to occur if the measure is adopted.

4.5. Strengths and limitations of the study

A strength of this study is a large and nationally representative sample, which provides good statistical power. Since the outcome measures are subjective endorsements of possible future actions, the self-report form is not a limitation of our study. However, attitude questions are sensitive to question wording. In our study it is not specified what is meant by 'children' in the question. Therefore, we do not know whether the respondents primarily think of toddlers, children under the age of 13 or children under 18 in their responses. Most respondents probably think of 'children in general'. However, the concern about second-hand smoke may vary according to the age of the child, and a possible clarification of the question to 'children under the age of 13' would most likely have provided even greater support.

The cross-sectional design, however, implies that the statistical correlations can only be regarded as associations, not as an expression of causal relations. In this case, this is not due to the temporal dimension, which is more or less given for all explanatory variables, but rather the lack of other potential control variables (e.g. parental status).

We also know from other studies that the relationship between education and smoking is significant, and that smokers with primary education have quit smoking to a much lesser extent than other educational groups [41]. Since those with low education (many of whom are still smokers) are somewhat underrepresented in this sample, we may have underestimated the resistance to the measure in the population as a whole.

Another possible limitation relating to representativeness is the design based on respondents needing to be available on Internet and/or smart phone platforms. In Norway, however, access to the Internet is now almost universal (95 percent), albeit somewhat less so among those over 65 years. And smart phones were used strategically only, to strengthen the representation of young people.

Finally, caution must be shown when generalising these cross-sectional findings from one particular country to other countries. It is likely, however, that the findings in this study will resonate strongly in other countries at the similar level of tobacco diffusion and with a similar culture as Norway for respecting children's rights. Firstly, other studies have shown that this measure tends to have strong public support; secondly, there is nothing in this study to suggest that our findings are dependent on any Norwegian distinctive features. As such, the findings may be of interest to health policy makers in other countries contemplating the introduction of this measure.

5. Conclusion

This national survey has shown that a majority in Norway supports a proposal prohibiting smoking in cars when children are present. Of all respondents, 78% stated their full support. This proposal received considerably higher support than other proposed measures. This was also the tendency among daily smokers in the sample. This means that the population does not oppose regulation of smoking in the private sphere per se. The strong endorsement of the proposal implies considerable normative support (in line with the statutory right of children to a smoke-free environment) which probably reflects the fact that the interests of children weigh heavily for most respondents. This also increases the likelihood of compliance and suggests that the measure could be implemented.

Conflicts of interest

None

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