Public Health Scotland

Impact of Scotland's smoke-free public spaces legislation 20 years on

Evidence briefing

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1. Executive summary

On 26 March 2006, Scotland put into place legislation to prohibit the smoking of tobacco products in enclosed public spaces to eliminate exposure to second-hand smoke. This briefing outlines findings from the comprehensive formal evaluation undertaken to assess the policy's impact and subsequent published research on key outcomes.

Changes in exposure to second-hand smoke

The evidence suggests that the smoke-free spaces legislation was associated with a reduction in exposure to second-hand smoke in adults and children within the first year of implementation. This decline was sustained over the longer term among adults. There is evidence that it was linked to reductions in adult and child exposure in hospitality venues, workplaces and on public transport but little or no change in exposure was reported in the home or in cars. Despite initial concerns, there was no evidence of displacement of smoking from pubs to the home following the smoke-free law. Notable reductions in occupational exposure were also observed within the first year of the legislation being introduced, and these were maintained over a five-year period.

Health impacts

The smoke-free spaces legislation has been linked to a range of health benefits including fewer cardiovascular events (heart attacks and strokes), better outcomes for mothers and babies (fewer pre-term and small for gestational age babies, less high blood pressure in pregnancy) and improved respiratory and sensory symptoms.

Changes in attitudes, behaviours and social norms

There was mixed evidence of impact on smoking cessation, with the introduction of the legislation initially encouraging people to stop smoking but this was not sustained.

Smoke-free legislation was associated with shifts in smoking attitudes and behaviours in private spaces. Changes included voluntarily imposing restrictions in

the home and within extended family and social networks, primarily driven by the desire to protect minors from second-hand smoke. However, the legislation was reported to have limited impact on home smoking behaviours among women, and on attitudes around home smoking restrictions among people who smoked and people of lower socioeconomic status.

There was evidence that the legislation shifted social norms. Smoking became socially unacceptable in hospitality venues, with attitudes shifting towards acceptance of the legislation out of respect for bar owners and other customers, and behaviour changes mainly driven by environmental and social constraints. Stigmatisation was reported as an unintended consequence of the legislation.

Bar workers were broadly supportive of the legislation prior to its implementation, mainly due to the anticipated health benefits but attitudes strengthened post-legislation, with the greatest shift seen among older workers. Increasing support led to smoke-free environments in hospitality venues as the new social norm. Bar workers reported a shift towards a more family friendly environment in pubs, better working conditions and positive changes in customer behaviour in terms of compliance. Violations usually occurred in outlying areas of hospitality venues and were more common in rural and disadvantaged locations. Bar workers and hospitality businesses adapted to the legislation, although venues in disadvantaged areas required more support.

Economic impact

Evidence on the economic impact of the legislation was limited. One study reported an immediate negative effect after implementation. Narrative reports suggested changes in behaviours may have mitigated the impact on the hospitality sector and reduced usage of healthcare services.

Conclusion

Scotland's smoke-free spaces legislation marked a step change in tobacco control measures and delivered important public health gains, with sustained reductions in second-hand smoke exposure, improved health outcomes, transformed hospitality environments and altered social norms. Twenty years on, the policy remains a key

public health achievement and, together with subsequent tobacco control measures, has strengthened Scotland's progress to becoming smoke-free in 2034.

2. Background

Smoking is a leading cause of preventable illness and early death in Scotland.[1] Exposure to second-hand tobacco smoke is also associated with significant harm.[2, 3] Regulation of tobacco is a means of improving health outcomes and reducing health inequalities.[4]

On 26 March 2006, Scotland put into place legislation to prohibit the smoking of tobacco products in wholly or substantially enclosed public spaces, to include workplaces, hospitality venues, public transport and hospital and healthcare facilities.[5] The aim of the legislation was to eliminate exposure to second-hand tobacco smoke in public places, thereby contributing to improving the health of the Scottish population.[6] Scotland was the first UK nation to implement this tobacco control measure; followed by Wales and Northern Ireland in April 2007 and England in July 2007.[7] A comprehensive evaluation was put in place to assess the impact of the 2006 legislation in Scotland, on eight key outcome areas: compliance with the legislation; second-hand smoke exposure; smoking prevalence and tobacco consumption; morbidity and mortality; knowledge and attitudes; socio-cultural adaptation; economic impacts on the hospitality sector; and health inequalities.[8, 9] A number of studies were commissioned to evaluate the impact of the legislation on these outcomes, involving researchers from several organisations and universities (see Appendix).[8]

2.1. Purpose of this briefing

This briefing provides an overview of the evidence on the cumulative impacts of Scotland's smoke-free spaces policy over the past 20 years.

A systematic approach was used to identify peer-reviewed literature that assessed the impact of Scotland's smoke-free spaces policy. The briefing brings together evidence from the studies commissioned as part of the evaluation[9] and subsequent published research to 2025. It is a synthesis of the literature and outlines key findings. Critical appraisal of included literature has not been undertaken.

The evidence is summarised thematically on:

- changes in exposure to second-hand tobacco smoke
- health impacts
- changes in attitudes, behaviours and norms
- economic impacts.

Where possible, it is summarised by population subgroups and setting.

3. Changes in exposure to second-hand smoke

Key points

- Scotland's smoke-free spaces legislation was associated with reductions in exposure to second-hand smoke in adults and children in the first year of implementation. This decline was sustained over the longer term among adults.
- The legislation was linked with reductions in adult and child second-hand smoke exposure in public places such as hospitality venues, workplaces and on public transport but little or no change in exposure was reported for private spaces such as in the home or personal cars. Therefore, there was no evidence of displacement of smoking from public spaces to the home following the smoke-free law.
- There is some evidence that legislation led to voluntary restrictions on smoking in the home, with more stringent rules resulting in lower exposure to second-hand tobacco smoke in children.
- Notable reductions in occupational exposure were observed within the first year of the legislation being introduced, with these most marked among bar workers who did not smoke. Reductions in occupational exposure to second-hand tobacco smoke were maintained over a five-year period.

The effect of the legislation on exposure to second-hand tobacco smoke was formally evaluated in the Health Education Population Survey (HEPS)[10], Changes in CHild Exposure to Environmental Tobacco Smoke (CHETS)[11] study and Bar Workers' Health and Environmental Tobacco Smoke Exposure (BHETSE)[12] study in adults, children and bar workers respectively. The findings from these studies and follow-up evaluations are summarised here.

3.1. Adults

Adult exposure to second-hand tobacco smoke was studied in the HEPS evaluation which used a national survey and repeated cross-sectional design.[10] It measured changes in the exposure of non-smoking adults to second-hand tobacco smoke before and after implementation of the policy, using salivary cotinine data which is a metabolite of nicotine and validated biomarker to indicate smoking exposure and smoking status. After the first year of implementation, a 39% decrease in mean cotinine concentrations was observed in Scottish adults who did not smoke, representing a significant reduction in exposure to second-hand tobacco smoke.[10]

Longer-term reductions in exposure to second-hand tobacco smoke were observed beyond the formal evaluation period. Data from the annual Scottish Health Survey on changes over time in salivary cotinine levels in non-smoking adults demonstrated a 97.2% decrease in cotinine concentrations between 1998 and 2016, with most of the change occurring between 2003 and 2008. Analysis of these data also showed a greater than six-fold increase in the proportion of people who did not smoke and who had no detectable level of exposure to second-hand smoke, rising from 12.5% in 1998 to 81.6% by 2016.[13]

Several studies explored differences in exposure between different types of public places and private spaces before and after implementation of the legislation.[10, 14] The HEPS study found that self-reported exposure to second-hand tobacco smoke decreased in all public places and workplaces but not in the home or private cars. Within the home, people who did not smoke and lived in non-smoking households compared with smoking households benefited most from the legislation.[10] These findings are consistent with a longitudinal International Tobacco Control study that reported large declines in self-reported second-hand tobacco smoke exposure in hospitality venues and workplaces in Scotland compared with the rest of the UK. No evidence was found of changes in home smoking behaviours in Scotland, challenging the assumption that national smoke-free regulations would encourage people who smoked to shift smoking into the home.[14]

3.2. Children

Changes in child exposure to second-hand tobacco smoke were also assessed as part of a national evaluation of the smoke-free legislation in the CHETS study.[11] This was a nationally representative cross-sectional study to measure second-hand tobacco smoke exposure among primary school-aged children using both objective (salivary cotinine concentrations) and self-reported (parental smoking and exposure to tobacco smoke in public and private places) measures, before and one year after the introduction of the legislation. The results of this study showed the legislation was associated with initial rapid progress in reducing second-hand tobacco smoke exposure among children, with a corresponding 39% decrease in adjusted geometric mean cotinine concentrations. The magnitude of reduction varied by parent smoking status in the home, with significant reductions only observed in children with both non-smoking parents, and among children with fathers who smoked. However, the legislation did not worsen exposure to second-hand tobacco smoke among children in households where either or both parents smoked, suggesting there was no displacement of smoking into the home.[11]

Socioeconomic differences in second-hand smoke exposure among children were also identified. Exposure to second-hand tobacco smoke in 11-year-old children was socially patterned and while reductions were observed across all groups one year after legislation, these were greatest in children from families of lower socioeconomic status.[15]

The legislation changed children's second-hand tobacco smoke exposure across different locations. The CHETS study found evidence of lower second-hand tobacco smoke exposure among children in public places after introduction of the legislation, such as hospitality venues (cafes and restaurants) and on public transport (buses and trains); this decline was only significant for hospitality venues. Second-hand tobacco smoke exposure was more likely in private locations than public venues; similar exposure was reported in children's own homes or in cars between survey years but exposure to second-hand tobacco smoke in other people's home decreased after legislation.[11]

In terms of changes to second-hand tobacco smoke exposure in the home, more children reported smoking was completely prohibited within the house post-legislation compared with partial (smoking was confined to some rooms) or no restrictions. Second-hand tobacco smoke exposure, confirmed by salivary cotinine, was lowest in those who reported living in a completely smoke-free home. This difference was not affected by parental smoking status.[16]

3.3. Occupations

Evidence of reduced occupational exposure comes from four studies involving hospitality venues[12, 17-19] and one involving care homes.[20]

For hospitality, three studies were based on the BHETSE project which had a longitudinal design and was commissioned as part of the formal programme of evaluation of the legislation.[12, 17, 18] The first study gathered information from bar staff working in 72 bars across various socioeconomic settings in three cities and two rural localities. The researchers used recognised biomarkers of second-hand tobacco smoke exposure such as salivary cotinine and airborne levels of fine particulate matter ($PM_{2.5}$), which were taken before implementation of the legislation and at two and 12 months afterwards.[12] Large declines in exposure to second-hand tobacco smoke were seen among most bar workers within two months of the legislation being introduced and these were sustained over one year. Reductions were 89% for people who did not smoke compared with 12% for people who did smoke using paired comparisons of saliva cotinine levels before and after one year of legislation. $PM_{2.5}$ personal exposure data during a shift was also measured for a small number of bar workers, with the results showing an average reduction of 86% between baseline and two months after implementation of the legislation.[12]

Two studies provide further evidence of reduced occupational second-hand tobacco smoke exposure using $PM_{2.5}$ concentrations.[17, 18] One measured changes in second-hand tobacco smoke levels that bar workers and patrons were exposed to in 41 pubs across two cities before and two months after the introduction of the legislation, and recorded an 86% reduction in airborne levels of $PM_{2.5}$, indicating that the smoke-free legislation achieved indoor air quality in pubs that was comparable to outside

ambient levels.[17] The other is a five-year (2006-2011) follow-up study of bars previously assessed in BHETSE study which highlighted continued compliance with legislation and reductions in second-hand smoke exposure for staff and non-smoking patrons, as well as indoor $PM_{2.5}$ levels remaining similar to outdoor levels.[18]

In addition, a comparison of indoor air quality in bars across Scotland, Wales and England demonstrated very poor air quality in all three nations before legislation and substantial reductions in airborne $PM_{2.5}$ levels after legislation of between 84% and 93%. There was some limited evidence that pre-legislation levels of $PM_{2.5}$ were higher in bars in more deprived areas than affluent areas.[19]

Data for care homes (which were exempt from the smoke-free spaces legislation when it was first introduced but where smoking was only permitted in a designated room for residents) come from a small study of eight establishments in Aberdeen and its vicinity. Results show that care home workers were subjected to short intense bursts of second-hand tobacco smoke from smoking rooms during their shifts but personal $PM_{2.5}$ measurements indicated low overall exposure in their workplace, which were consistent with cotinine measurements. Overall, lower levels of geometric mean cotinine were likely the result of reduced exposure in social settings outside of work after the legislation was introduced, and aligned with the general population trend.[20]

4. Health impacts

Key point

- Smoke-free spaces legislation improved cardiovascular outcomes (reduced deaths and hospitalisations from heart attacks and strokes), pregnancy and perinatal outcomes (reduced pre-term deliveries, births that were small and very small for gestational age and maternal complications due to high blood pressure), and respiratory health (reduced airway inflammation and fewer sensory symptoms).

There was some evidence of improvement in health outcomes from reduced second-hand tobacco smoke exposure.

4.1. Cardiovascular events

Evidence that smoke-free legislation improved cardiovascular outcomes (such as death and hospitalisation from heart attacks and strokes) came from three studies[21-23], including the STudy Of Public place Intervention on Tobacco exposure (STOPIT) from the formal evaluation.[21]

STOPIT was a large study comparing acute coronary syndrome events (which include all types of heart attack caused by a blood clot, for example: myocardial infarction and unstable angina) from nine Scottish hospitals in the 10 months before and after legislation. It demonstrated a 17% reduction in hospital admissions between pre- and post-legislation, which was greater than the underlying trend and was predominantly seen in people who did not smoke.[21]

This finding is consistent with a study examining myocardial infarction incidence in Scotland over a 10-year period (2006-2016). It noted a significant reduction of 13.4%, observed in men aged 60 years and over, and in women of any age. This reduction was sustained across a 10-year period for men and women aged 60 years and over.[22]

Finally, a study looking at the impact of legislation on stroke events from 2000 to 2010 reported a significant 6.7% reduction in incidence relative to pre-legislation levels. When comparing different kinds of stroke, the reduction was significant for strokes caused by interruption of blood supply (cerebral infarction) but not significant for strokes caused by a bleed in the brain (intra-cerebral haemorrhage) or any other kind of stroke. The reduction in cerebral infarctions lasted for about 20 months post-legislation but then continued to remain below predicted pre-legislation levels.[23]

4.2. Pregnancy, perinatal and congenital outcomes

Evidence from two out of three studies found smoke-free legislation had some positive impacts on the health of mothers and their babies.[24, 25]

A study of outcome data for women discharged from Scottish maternity hospitals indicated that from January 2006 (that is, prior to implementation of legislation) to December 2009, there were reductions for a range of adverse pregnancy outcomes (such as pre-term deliveries, babies born small or very small for their gestational age, low birth weight and spontaneous pre-term labour) for both smoking and non-smoking mothers. It found that smoke-free legislation in Scotland was associated with significant reductions in pre-term delivery and babies being born small for gestational age. The implementation of legislation was also accompanied by a significant reduction in smoking among women who smoked (from 25.4% before legislation to 18.8% after legislation) and a significant increase in women who never smoked and delivered in this period (from 57.3% pre-legislation to 58.4% post-legislation).[24]

A study looking at the effect of comprehensive tobacco control measures in Scotland over a 20-year period, including smoke-free legislation, confirmed these findings. The authors found an association with decreased smoking during pregnancy and reductions in births with small and very small for gestational age and pre-eclampsia (high blood pressure during pregnancy). They acknowledged that multiple control measures may have contributed to this improvement over the timespan, not just smoke-free legislation.[25]

A third study, a UK population-level interrupted time series analysis from 2000 to 2018 on the incidence of children being born with a cleft lip and/or palate, found weak evidence of an increase in incidence in Scotland following smoke-free legislation (whereas a significant decrease was seen in England, Wales and Northern Ireland following similar legislation).[26]

4.3. Respiratory and sensory health

Smoke-free legislation was associated with some improvement in respiratory and sensory health among bar workers and children.

Two studies have reported positive effects for bar workers.[27, 28] The BHETSE study showed significant reductions of 12% for self-reported respiratory symptoms (such as wheeze, shortness of breath, cough, phlegm) and 11% for sensory symptoms (including red/irritated eyes, runny nose, sore/scratchy throat). These improvements were seen for both smoking and non-smoking bar workers.[27]

A smaller study of bar workers in Tayside also reported a rapid improvement in respiratory and sensory symptoms, lung function and systemic inflammation within one to two months after implementation of smoke-free legislation. The biggest health gains were observed for bar workers with asthma, with less airway inflammation and improved quality of life. However, the change of seasons was not considered when the symptoms were measured and may have affected the results.[28]

Three studies explored the association between prohibiting smoking around public spaces and outcomes relating to respiratory health in children.[29-31] These showed mixed results. One longitudinal study identified a 19.5% reduction in admissions to Scottish children's hospitals for asthma after implementation of the legislation; this decline was similar for both preschool and school-aged children.[29] An interrupted times series of Scottish morbidity and mortality data (1996-2012) showed an unexpected rise in respiratory tract infection events (i.e. deaths or hospitalisations) after March 2006. Further exploration of this unlikely finding indicated that it was influenced by a sharp rise in respiratory tract events in the 16 months preceding legislation and when the authors took this unprecedented change into account, the results reversed and indicated that legislation may in fact have been protective.[30] In

addition, a comparative analysis showed no significant changes in the incidence of wheeze/asthma or respiratory tract infections in Scotland and across all UK nations after introduction of smoke-free spaces policies.[31]

5. Changes in attitudes, behaviours and norms

Key points

- There was some mixed evidence from four studies on smoking cessation, with the legislation encouraging people to quit smoking in the short term, but this effect was not sustained.

- There was evidence that smoke-free legislation changed attitudes and behaviours about smoking in the home, with increasing adoption of restrictions (i.e. either complete or partial) on smoking in homes reported. This appeared to be motivated by a desire to limit exposing children to second-hand smoke. The legislation was found to have limited impact on home smoking behaviours among women, and imposing restrictions in smoking households and those of lower socioeconomic status.

- The legislation denormalised smoking in public places, with attitudes shifting towards acceptance. Changes in smoking patterns and behaviours after legislation were linked to the way people interacted socially and constraints on their environment. These were most apparent in disadvantaged areas. Stigmatisation was an unintended consequence of the legislation.

- Attitudes towards the smoke-free law among bar workers strengthened post-legislation, with the greatest shift among older workers. Norms shifted around smoke-free hospitality environments. Legislation improved the working environment of hospitality staff and adjusted their smoking behaviours. Customers generally accepted and complied with the new law. Violations were more common in peripheral areas of hospitality premises, in rural areas and disadvantaged areas. Bar workers and hospitality businesses adapted to the legislation, although venues in disadvantaged areas required more support.

5.1. Changes in smoking cessation

Evidence for the impact of Scotland's smoke-free spaces legislation on smoking cessation was mixed and came from four studies which were not part of the formal evaluation.[32-35]

One study showed that there had been an overall increasing trend in cessation rates among people who smoked aged 50-75 years between 1999 and 2007, equivalent to about 9% giving up each year. This peaked in the three months leading up to the introduction of the smoke-free law in March 2006 when the quarterly quit rate rose sharply to 5.1%. However this upward trend did not continue over the following six months. Of the people who smoked and who quit between June 2005 and May 2007, about 40% of them reported that the legislation had influenced their decision. Socioeconomic status did not affect smoking cessation rates, but there was a more positive response to the legislation among affluent communities.[32]

Consistent with this finding, there is some evidence from two additional studies that Scotland's smoke-free legislation was linked to a short-term increase in the use of nicotine replacement therapy. A study of over-the-counter sales from 2004 to 2006 demonstrated a dramatic rise in the first six months of 2006 in Scotland which was not seen for the rest of the UK (which had not introduced legislation at that time) but was not sustained for the second half of 2006.[33] This trend was also seen in a study looking at Scotland-wide prescribing data of nicotine replacement therapy over a longer timeframe (2003-2009). The rise in prescriptions was accompanied by a 1.7% absolute reduction in self-reported smoking prevalence, which reverted to levels consistent with underlying trends soon after, but suggested that the legislation encouraged positive changes in smoking behaviour.[34]

Finally, the UK Millennial Cohort study provided an opportunity to compare parental smoking behaviours between England and Scotland after the smoke-free legislation and investigate inequalities in maternal smoking behaviours. It tracked a nationally representative sample of children (between the ages of 9 months (before the legislation) and 5 years (after legislation in Scotland but not in England)) and their parents. The study found the legislation was associated with no effect, with levels of

parental smoking remaining similar and relatively stable across both nations, and no widening in health inequalities.[35]

5.2. Changes in smoking intensity

A study analysing cigarette filters enabled a comparison of smoking behaviour of people who smoked regularly outside public venues compared to indoors before, immediately after and six months post-implementation. Tar and nicotine yields indicated no change in the intensity of cigarette smoking outside public venues in Scotland. Given there was no overall change in the number of cigarettes smoked, this suggests that legislation had little effect on cigarette consumption or mainstream smoke exposure (i.e. tobacco smoke exhaled by people who smoked after they have inhaled) over the study period.[36]

5.3. Changes to smoking in the home

There was some evidence from three studies that the smoke-free legislation altered attitudes and behaviours about smoking in the home.[37-39]

The first two studies[37, 38] were part of a qualitative research project on smoking in the home with participants recruited from the HEPS study.[10] The first qualitative study explored the views of 50 people who smoked and did not smoke (but who lived with people who smoked) about smoking in the home. It found that although beliefs about the legislation varied, most recognised that exposure to second-hand tobacco smoke represented a health risk, particularly to children or grandchildren. Most people imposed some type of restriction on smoking within the home and the car, which ranged from complete restrictions to partial restrictions; while some people did not put restrictions in place at all. Those with partial or no restrictions noted they would modify these if children were present (i.e. type of rooms where smoking was or was not allowed). Key motivations included protecting minors, social norms and the negative aesthetics of smoking (such as smell and staining). Smoking and socioeconomic status had some effect on attitudes; such that smoking adults who lived on their own or with others who smoked, and people from semi-skilled or unskilled occupations were least likely to have implemented any restrictions.[37]

The second qualitative study explored the views of other family members of the 50 participants from the HEPS study about managing smoking in the home. It highlighted a ripple effect, where immediate home restrictions extended to relatives and wider social networks such as grandparents and visitors. Most participants described a growing awareness that smoking near children was not appropriate.[38]

Finally, a third study explored links between gender and smoking in the home using data from two qualitative studies (one of which was commissioned as a part of the evaluation, known as the Qualitative Community Study[40]). The most notable finding was that the legislation had limited impact on home smoking behaviours among women due to caring responsibilities and restricted social interactions, already providing limited opportunities to smoke outside. While men were more likely to smoke during working hours and reduced their smoking in the home, the domestic setting remained the preferred site for smoking among women, indicating that the legislation had little effect on reducing exposure in this group.[39]

5.4. Changes in cultural and social norms

The implementation of smoke-free legislation in Scotland provided an opportunity to examine how a population-level intervention could challenge established smoking norms and patterns. Four studies looked at how environmental and social factors associated with the legislation shaped smoking norms.[40-43]

A longitudinal study, which examined attitudes among Scottish and UK smoking adults before and after the policy and was part of the International Tobacco Control study, found that the legislation denormalised smoking behaviour. Changes in perceptions of the social unacceptability of smoking were similar in both Scotland and the UK, but smoking was considered more socially unacceptable in Scotland post-legislation compared to the rest of the UK, which had not yet implemented the legislation. Support for the legislation at baseline among people who smoked in Scotland was associated with higher quit intentions at follow up. For both samples, quit intentions were significantly associated with heightened perceived unacceptability at follow up.[41]

A qualitative study examined social and contextual factors which shaped positive or negative attitudes of smoking and non-smoking bar customers. Interviewees from a variety of different backgrounds were primarily influenced by non-health factors in their views about the smoke-free legislation from six months before and after its implementation. Smoking status shaped views, with smoking populations predominantly opposing and non-smoking populations supporting the legislation. Negative views focused on lack of personal freedom, loss of community and culture as pubs were considered social spaces, and practical issues such as workability and planning for outside areas. Positive views largely focused on health and social factors such as cleaner air and less tobacco smells on clothing.[42]

The impact of Scotland's smoke-free legislation on attitudes and behaviours in four Scottish communities with contrasting socioeconomic and geographic profiles was examined in the longitudinal Qualitative Community Study, which was commissioned as part of the formal evaluation.[40] Interviews and venue observations at three different timepoints showed that before the legislation, smoking was more visible in disadvantaged areas, while in affluent areas changes were already underway to develop smoke-free spaces. After legislation, compliance was high, and behaviour changes, especially in disadvantaged areas, included reduced consumption and increased quitting; these were driven by environmental constraints, limited outdoor facilities, and avoiding disruption to the social flow (though some found camaraderie between those who smoked and gathered outside). Attitudes shifted from resistance (which was greater in disadvantaged areas) to acceptance out of consideration and respect for others and staff.[40] Stigmatisation of people who smoked was an unintended consequence of the legislation due to the segregation of spaces and relocating this population to externally visible public places. People who smoked reported that they felt shame associated with their behaviour and there was negative self-labelling with having a 'smoker' identity.[43]

5.5. Changes within the hospitality sector

Evidence from five studies suggests that the legislation had a notable impact on attitudes, behaviours and the working environment of staff in the hospitality sector.[44-48]

An evaluation of changes in bar workers' attitudes towards legislation, which was part of the BHETSE project, found views towards the smoke-free regulations among bar workers were generally positive prior the legislation. Agreement with the legislation strengthened from 69% pre-implementation to 79% post-implementation, an increase of 10%. Younger bar workers were more positive than older workers about the legislation but post-legislation there was a marked shift in attitudes among older workers. Protecting health was consistently given as the main reason for the legislation in about 80% of respondents across two waves of data collection. These findings suggest that this shift in attitudes contributed to the creation of smoke-free environments as the new social norm.[44] The Qualitative Bar Study, part of the formal evaluation, employed a longitudinal qualitative design to explore attitudes and behaviours in bars in three contrasting communities. This study also recorded a positive shift in attitudes towards the legislation among hospitality staff, shaped by gains such as improved air quality. Negative attitudes were more common in more disadvantaged communities, where smoking norms and risk of financial downturn heavily influenced opposition to the legislation. Bar staff reported changing their own smoking behaviour more easily than expected, which included taking smoking breaks when business was quiet, taking breaks that were more perfunctory, and binge smoking behaviour pre- or post-shift. Proprietors reported adjusting business and working practices to comply with new regulations, although businesses serving disadvantaged communities faced more challenges and needed greater support.[45]

Insights from a qualitative study of bar workers' views on patrons' behaviour in response to the legislation, which formed part of BHETSE project, highlighted several positive changes including: customers’ ready acceptance and compliance with the law; development of new social networks by those who smoked from standing outside; expansion of pub life to include families; and a healthier working environment. Some respondents mentioned negative aspects such as older single smoking males struggling to smoke outside due to mobility issues and not returning to the pub as a result, as well as the risk for drink-fuelled street violence and spiking of unattended drinks.[46]

Compliance was specifically explored in the Qualitative Bar Study with owners, bar workers and customers of eight bars in three communities and found to be variable

within the first 12 months after legislation was implemented. All bars imposed the new regulations, with fear of prosecution noted as the main driver for enforcement. Poor compliance was usually unintentional, particularly among older groups and people who had drunk too much and breaches tended to be resolved quickly. There were reports that some subgroups found it more difficult to adjust (such as people with learning difficulties and non-Scottish customers). Intentional violations were usually in the peripheries of the bar and observed by bar workers. Whilst there were structural and logistical issues that may have influenced compliance (such as bar layout), differences in compliance were often due to management in terms of their competency and attitudes towards the legislation, and pre-legislation smoking norms within the bar.[47]

Finally, the International Tobacco Control Study looked at the effect of smoke-free legislation on drinking behaviours in pubs and at home in Scotland compared with the rest of the UK. It indicated that there was no significant change or rise in home drinking one year after legislation. However, a subgroup analysis suggested that there was some evidence that moderate and heavy smoking populations drank less alcohol and attended pubs and bars less frequently, while people who did not smoke attended pubs more.[48]

6. Economic impact

Key point

- There is limited evidence on the economic effects of smoke-free legislation, with one study reporting an immediate negative effect of the legislation on the hospitality sector within the first month or two.

Only one published study with a primary focus on the assessment of economic effects of the legislation was identified, although it was not part of the formal evaluation. It used a quasi-experimental design to examine the immediate economic impact on Scottish pubs in terms of sales and customer numbers pre- and post-legislation and compared these with control premises in Northern England. The findings suggest the legislation was associated with a negative economic impact within the first one to two months of implementation, with a significant 10% decrease in sales and 14% decrease in customers.[49]

Qualitative reports provide further insight into the economic impact on the hospitality sector. Findings from the Qualitative Bar study indicated that the financial risk of the legislation on hospitality businesses was considered to be greater in more disadvantaged communities as local smoking norms meant pubs in these areas were more dependent on customers who smoked.[45] Whilst there were some concerns among proprietors and bar staff about the impact on trade pre-legislation, there were more positive attitudes post-legislation regarding job security and reports that business was not adversely affected.[44, 46]

A number of quantitative studies reported reduced use of hospital services from smoking-related health conditions such as cardiovascular and respiratory conditions which suggest potential cost savings for healthcare services.[21, 22, 29] Two quantitative studies also found no impact on pub patronage[14, 48]; one study reported reduced attendance among people who smoked and drank more heavily was offset by increased attendance of people who did not smoke.[48]

7. Conclusion

A comprehensive evaluation conducted in the first year of implementation found good compliance with the smoke-free legislation and notable health gains associated with reductions in exposure to second-hand tobacco smoke for adults and children as well as staff working in bars.

The evidence suggests that the legislation had a notable impact on the hospitality sector, transforming the working environment for staff, and improving the comfort of patrons. Smoke-free environments contributed to a changed climate of social non-acceptability toward public smoking and increased denormalisation of smoking for individuals and social groups. Social, relational, environmental, health and aesthetic factors all influenced attitudes and behaviours. Whilst there were some negative consequences for some subgroups of the population, including stigmatisation and social isolation of people who smoked, there was a general acceptance of the benefits of the legislation over time. Furthermore, concerns about potential displacement of smoking from hospitality venues to the home following the smoke-free law were unfounded, indeed there was some evidence that legislation led to increased voluntary restrictions on smoking in the home out of a greater societal responsibility to protect children from second-hand tobacco smoke. There was limited evidence on economic impacts of the legislation.

Published evidence of impacts of the legislation beyond the first year of implementation primarily focused on health and developed our understanding of the longer-term benefits of the legislation. Longer-term reductions in exposure to second-hand tobacco smoke in adults were maintained and indeed have increased in the 20 years since, and the legislation continues to protect the public from the harmful effects of second-hand tobacco smoke. Furthermore, improved outcomes for cardiovascular events and pregnancy have been recorded. Further population-wide tobacco control policies have progressively been introduced in Scotland over the last two decades (such as advertising restrictions and enhanced taxation), and smoke-free environments have been extended to vehicles carrying children (in 2016), prisons (in 2018) and perimeters around NHS and local authority buildings (in 2022). How these additional measures have also contributed to the health benefits derived

from the smoke-free legislation needs to be considered in the research beyond the formal evaluation period.

The 20th anniversary of the implementation of Scotland's smoke-free legislation provides an important moment to reflect on the achievements of this innovative policy. The legislation and, importantly, the comprehensive evaluation programme that accompanied this change, have both proven to be globally important. Smoke-free spaces legislation is considered to be one of the foundation stones of modern public health policy in Scotland, paving the way for devolved legislation on other health harming products, including alcohol. This 20th anniversary should give fresh impetus to Scotland's ambition to be smoke-free by 2034 and achieve its target of less than 5% smoking prevalence among the adult population.

8. Appendix. Commissioned studies

Studies commissioned as part of the comprehensive evaluation of Scotland's smoke-free spaces legislation were:

- Changes in CHild Exposure to Environmental Tobacco Smoke (CHETS)
- Health Education Population Survey (HEPS)
- Bar Workers' Health and Environmental Tobacco Smoke Exposure (BHETSE)
- STudy Of Public place Intervention on Tobacco exposure (STOPIT)
- International Tobacco Control UK/Scotland Extension study
- the Qualitative Community Study
- the Qualitative Bar Study.[8, 9]

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