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Rapid Evidence Synthesis: Implementing policies that restrict the use of public sector-owned space for advertising unhealthy foods

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Rapid Evidence Synthesis:

Rapid Evidence Syntheses (RES) are produced by the National Institute for Health and Care Research (NIHR) Applied Research Collaboration for Greater Manchester (ARC-GM). The methods used are based on a framework set out in Norman et al. 2022 and previously registered on the Open Science Framework (OSF). [1,2]

RES use evidence synthesis approaches and draws on the GRADE Evidence to Decision framework[3] to provide rapid assessments of the existing evidence and its relevance to specific decision problems. In the first instance, they focus on evidence from guidance and existing evidence syntheses. They are undertaken in a real-time context of decision-making around adoption of innovative health technologies and are designed to provide a "good-enough" answer to inform decision problems in a short timescale. RES methods are flexible and adaptive. They have evolved in response to user feedback and differ depending on the nature of the assessment undertaken.

RES is not intended to serve as a substitute for a full systematic review.

We welcome feedback and are particularly interested to hear how you have used this Rapid Evidence Synthesis.

Please send any queries or comments to:

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This work was undertaken by the National Institute for Health Research (NIHR) Applied Research Collaboration for Greater Manchester (ARC-GM). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

[1] Norman, G. *Rapid evidence synthesis to support health system decision making. OSF registration.* 2020 [cited 2023]; Available from: osf.io/hsxk5

[2] Norman, G., et al., *Rapid Evidence Synthesis To Enable Innovation And Adoption in Health and Social Care.* Systematic Reviews, 2022. **11**: p. 250. https://doi.org/10.1186/s13643-022-02106-z

[3] Alonso-Coello, P., et al., *GRADE Evidence to Decision (EtD) frameworks: a systematic and transparent approach to making well informed healthcare choices. 1: Introduction.* BMJ, 2016. **353**: p. i2016.

1. Summary

There is ***limited*** research evidence regarding the implications of restricting the use of public sector-owned spaces for advertising unhealthy foods and non-alcoholic beverages (i.e., those high in fat, salt, and/or sugar).

Direct evidence from evaluations of Transport for London's (TfL's) policies of restricting the advertising of unhealthy foods suggests potential impacts on reducing unhealthy food purchase behaviours, preventing obesity, diabetes and cardiovascular disease, improving quality-adjusted life years, and saving NHS and social care costs over the lifetime of the current population. Review evidence was only of ***indirect relevance*** and gave little insight into the implications of restricting the advertising of unhealthy foods in public sector-owned spaces.

Possible facilitators of the implementation of advertising restriction policies include:

- Public engagement and consultation,
- Building partnerships with key stakeholders,
- Strong political will and champions with political power,
- Rights-based reframing of issues such as protecting children.

Barriers include industry opposition and loss of government revenue.

We summarise below the research evidence identified in this area. More details are in Section 3 Results.

Rapid evidence synthesis questions	**Directly relevant evidence** (relates to policies restricting the advertising of unhealthy foods in public sector-owned spaces)	**Indirectly relevant evidence** (relates to a range of advertising approaches)
Do policies restricting unhealthy food advertising reduce people's exposure to outdoor food marketing and/or its persuasive effects?	Not available	Unclear evidence
Does restricting unhealthy food advertising in public sector-owned spaces impact on unhealthy food purchase and consumption?	Transport for London's policy evaluation suggests an association between their restrictions on unhealthy food advertising and reduced purchases of unhealthy foods and non-alcoholic beverages.	Limited evidence that exposure to unhealthy food marketing increases consumption of unhealthy food products.
Does restricting unhealthy food advertising in public sector-owned spaces impact on population health outcomes?	Transport for London's policy evaluation suggests a potential population impact on preventing obesity and reducing the incidence of diabetes and cardiovascular disease and increasing quality-adjusted life years, with greater benefits to socioeconomically deprived groups.	Inconsistent findings on the association between outdoor food and beverage advertising and obesity.
Do policies to restrict unhealthy food advertising in public sector-owned spaces have financial impacts for authorities?	Three years of implementing Transport for London advertising restriction policies could potentially save £218 million in NHS and social care costs over the lifetime of the current population.	Advertising restrictions can reduce advertising-related revenue for organisations.
What are the barriers to restricting the use of public sector-owned space for advertising unhealthy foods?	Industry opposition; perception of negative impact on government revenue; lack of political will; weak or unclear mechanisms for monitoring and enforcement; insufficient public demand/support.	Political activities of the ultra-processed foods industry and government vulnerability to commercial interests.
What are the facilitators for restricting the use of public sector-owned space for advertising unhealthy foods?	Wide-spread support among stakeholders and the public; strong political will and a political champion with power; effective partnerships between key stakeholders; rights-based reframing of the issue such as protecting children.	Strong role of the government and civil society.

2. Methods

2.1 Description of the Intervention

Outdoor advertising often uses spaces owned by the public sector such as public transport, billboards, and street posters and screens to market unhealthy foods and non-alcoholic beverages (termed as 'unhealthy food' hereafter). Exposure to outdoor advertising of unhealthy foods may have adverse impacts on people's attitudes, preferences, and behaviours towards consuming unhealthy foods, and thus be associated with obesity and non-communicable diseases. People from more disadvantaged groups are considered to have disproportionate exposure to greater food marketing. Implementing government-led policies to decrease the frequency and reach of food advertising and its power (i.e. the persuasive content and strategies used in advertising) have been suggested as a potential way to improve public health.

2.2 Search

We searched Medline (Ovid) and the Cochrane Library (including the Cochrane Database of Systematic Reviews and the Cochrane Register of Controlled Trials). Our searches were based on key terms around food and beverage, advertising, and outdoor or public assets. We also searched the reference lists of included reviews and used Google Scholar to identify further related articles.

2.3 Key Questions

Q1. What are the implications of implementing government-led policies to restrict advertising of unhealthy foods in public sector-owned spaces for people of any age in terms of advertising outcomes, health outcomes, and financial impact on local authorities?

Q2. What are the barriers and facilitators to the implementation of government-led policies that restrict advertising of unhealthy foods in public sector-owned spaces?

2.4 Inclusion Criteria

2.4.1 Participants

We included evidence about impacts on people of any age, regardless of existing health conditions. We did not limit the countries where the included studies were conducted, but we considered that the evidence is directly relevant to the context of this RES if the related studies were conducted in the UK.

2.4.2 Interventions

We included evaluations of the impact of any policy that aimed to restrict the advertising of unhealthy foods in public sector-owned spaces. We defined policies as formal guidelines, rules, initiatives, or recommendations that are initiated, led, or approved by central or local government.

We considered the following categories of policies to be eligible:

- Policies that aimed to ban the advertising of unhealthy foods in public sector-owned spaces,
- Policies that permitted restricted use of public sector-owned spaces for advertising unhealthy foods, with no restriction to the advertising content,
- Policies that permitted restricted use of public sector-owned spaces for advertising unhealthy foods, with advertising modified in terms of the advertising frequency and/or reach, or the power of the persuasive content and strategies used,
- Policies that supported promotional material discouraging consumption of unhealthy foods.

We considered research about both unhealthy food and unhealthy non-alcoholic beverages. It is challenging to define the range of unhealthy foods. In general, they are junk food, fast food, and soft drinks that contain high levels of fats, salts, or sugars (i.e., HFSS products). We accepted the unhealthy food definitions given by the authors of the included studies.

It is also challenging to define public sector-owned spaces, and we accepted the authors' definitions. Where it was unclear whether the advertising was in private or public sector-owned spaces, we considered the study eligible. We excluded studies that investigated other approaches to food advertising alone such as TV, and newspapers. Where a study included these other approaches together with outdoor advertising, we included the study in this RES but considered the evidence as indirectly relevant.

2.4.3 Comparators

We considered reviews and studies with any comparator group, including no intervention, and alternative interventions.

2.4.4 Outcomes

For Q1 we included various outcomes which reflect the potential impact of the intervention in four domains:

- Exposure to advertising. Specific outcomes can be related to the frequency and reach of advertising and its persuasive effects as defined by the authors of the included research.
- Behaviour-related outcomes. Specific outcomes can be related to the attitudes, preferences, and behaviours towards consuming unhealthy foods.
- Health outcomes. We did not limit this RES to specific health outcomes but were particularly looking for evidence of impact on obesity, and related co-morbidities such as diabetes, and cardiovascular disease. We looked for results by health inequity characteristics.
- Financial implications of restricting the advertising of unhealthy foods.

For Q2 we considered identified barriers and facilitators to the implementation of government-led policies to restrict advertising of unhealthy foods in public sector-owned spaces.

2.4.5 Study design

In the first instance we considered existing evidence syntheses, including systematic and scoping reviews of any design of primary study. We considered reviews of quantitative, qualitative, and mixed methods research as appropriate to the question addressed. We used a broad definition of systematic reviews as having a systematic search and clear inclusion criteria.

Where we were unable to identify relevant, existing evidence syntheses, or where the relevant review evidence was limited, we considered primary studies, looking at the most robust primary study designs first. For Q1 this is well-designed research that evaluates the implementation of restriction policies, in comparison with alternative policies or no implementation, over a defined follow up time in clearly defined participants and adjust for confounding in the analysis or by study design. These include controlled before-after studies, controlled interrupted time series studies, and studies with regression discontinuity designs. For Q2 these are well-conducted qualitative or mixed methods studies. Studies using other designs were considered only in the absence of randomised trial or high-quality qualitative evidence.

In summarising the evidence identified, we followed the GRADE approach to categorising the certainty of evidence into four levels:

- ***high*** certainty, indicating we are confident that the research findings reflect a true effect;
- ***moderate*** certainty, indicating we are fairly confident that the finding reflect a true effect;
- ***low*** certainty, indicating we have limited confidence in the findings, and more research is likely to change them;
- ***very low*** certainty, indicating there are no clear findings.

We followed general GRADE criteria in assessing the certainty of evidence without performing of full GRADE assessment.

3. Results

3.1 Results of search

We identified 1905 records from database searches. In this RES, we included four systematic or scoping reviews[1-4] and eight primary studies that include five evaluations of the Transport for London (TfL) advertising restrictions on high fat, salt and sugar (HFSS) products [5-9], and three evaluations of the later Bristol Advertising and Sponsorship Policy [10-12].

3.2 The implications of advertising restriction policies (Q1)

3.2.1 Influences on advertising exposure

We identified ***indirect evidence*** only on this topic. Boyland (2021) is a systematic review of the effect of policies designed to restrict both indoor and outdoor marketing of unhealthy food and drinks (non-alcoholic) to children.[4] Boyland suggested that the evidence for the effects of policies to restrict exposure to food marketing is unclear. We judge this evidence to be of ***very low certainty,*** as the 33 included studies reported inconsistent results and only eleven of 33 studies were judged to be high quality. Boyland (2021) also reports ***very low certainty*** of evidence on the power (persuasive effects) of marketing, meaning that it is ***unclear*** if the use of policies can restrict the power of marketing. For both outcomes, the evidence is on any type of approaches used in outdoor and indoor advertising, thus being slightly ***indirectly relevant*** to this RES that targets outdoor advertising in public sector-owned spaces.

3.2.2 Impacts on behaviour-related outcomes

Three reviews and two primary studies present evidence on this topic.

Direct evidence

Yau and colleagues report a controlled interrupted time series analysing changes in household food and drink purchases following restrictions of HFSS advertising across the TfL network.[9] They found an association between the implementation of restrictions on outdoor HFSS advertising and relative reductions in HFSS product purchases. This study is of ***good quality*** and has a large sample size (with > 5 million food and drink purchases recorded for 1,970 households). We considered the evidence ***high certainty***.

Scott and colleagues report a cross-sectional study that explored associations between exposure to outdoor advertising of unhealthy foods and self-reported consumption.[12] They found that respondents in Bristol and South Gloucestershire who reported seeing the advertising of unhealthy

foods were more likely to consume them. However, this association was not found when advertising exposure was measured by research investigators rather than being self-reported. The evidence seems ***inconsistent*** in terms of the exposure-consumption relationship in Bristol.

Indirect evidence

In a scoping review, Finlay and colleagues summarised evidence about the impact of exposure to outdoor food marketing on eating behaviour.[2] They however found ***limited*** evidence on the relationship between exposure to outdoor food marketing and eating behaviour outcomes, with only two studies exploring this relationship. One study included in this review suggested that for every 10% increase in exposure to outdoor food advertising, residents consumed 6% more soda, on average. The second study suggested that in Indonesia, self-reported exposure to food advertising on public transport was associated with the increased consumption of two specific food products high in fat, salt, and/or sugar but not eight further food products evaluated. The evidence in this review is slightly ***indirectly relevant*** to this RES as it is about the marketing of unhealthy foods rather than about government's restriction policies.

The systematic review of Boyland (2021) summarised evidence on related outcomes too, and it suggested unclear evidence on the food purchasing and the dietary intake outcomes.

In a scoping review, Chung and colleagues report evidence on the associations between outdoor advertising of unhealthy food and behaviour-related outcomes [1]. They only identified two quantitative studies in this area, one from Australia and one from Indonesia, both reporting that exposure to marketing of unhealthy food (including on public transport) increases consumption of unhealthy foods. The evidence is ***indirectly relevant*** to this RES.

3.2.3 Impacts on health outcomes

Direct evidence

Thomas and colleagues report findings from a health economic model, exploring the health benefits, cost savings and equity impacts of the TfL advertising policy (taking an English National Health Services and personal social services perspective).[8] In terms of health outcomes, they suggested that, after three years of implementation, the TfL advertisement restriction policy was expected to lead to promising results: (i) 94,867 fewer people in London with obesity, (ii) a reduction in the incidence of diabetes and cardiovascular disease by 2,857 and 1,915 cases respectively, (iii) production of approximately 16,394 additional quality-adjusted life years, with greater benefits to socioeconomically deprived groups.[8]

Indirect evidence

Two reviews report evidence on associations between the outdoor advertising of unhealthy foods and health outcomes [1, 2]. They both identified ***limited*** evidence in this area, with findings stemming from two primary studies. One US study suggests that outdoor food and beverage advertisements were associated with more obesity. That is, for every 10% increase in food

advertising in a neighbourhood, residents had 1.05 (95% CI 1.003–1.093, p < 0.03) greater odds of being overweight or obesity. The effect estimate is marginal. The second study found no association between self-reported exposure to HFSS advertising across transport networks and weight status. Therefore, there is only a small amount of evidence from just two studies on the impact of advertising on health outcomes and it is mixed and only ***indirectly relevant*** to this RES as neither of the two studies directly evaluated policies restricting advertising of unhealthy foods in public sector-owned spaces.

3.2.4 Financial implications

Direct evidence

In terms of the cost implications of implementing TfL's policies, the Thomas modelling suggested a saving of £218 million in NHS and social care costs over the lifetime of the current population after three years of policy implementation. [8]

Indirect evidence

Two reviews noted that advertising restrictions can reduce advertising-related revenue for organisations [1, 4].

3.3 Barriers and facilitators to the policy implementation (Q2)

Direct evidence

Two scoping reviews report evidence on the barriers and facilitators related to the implementation of policies to restrict advertising of unhealthy foods. The review by Chung et al is directly relevant to this RES [1]. The facilitators of policy implementation identified in this review include:

- Widespread support among stakeholders, including the general public;
- Strong political will and a political champion with power;
- Effective partnerships between key stakeholders;
- Rights-based framing, i.e., protecting children;
- Policy coherence;
- Existing legislative frameworks

Perceived barriers identified in Chung (2022) include:

- Industry opposition, including legal challenges
- Disagreement over definitions including what age defines a child, choice of reference nutrition models/criteria to classify foods as unhealthy
- Perception of negative impact on government revenue

- Lack of political will
- Weak or unclear mechanisms for monitoring and enforcement
- Insufficient public demand/support

A mixed methods study explored the barriers and facilitators to implementing the Bristol Advertising and Sponsorship Policy that restricts HFSS, alcohol, gambling and payday loans across council-owned advertising spaces [11]. The initial facilitators identified include:

- Bristol public's support for progressive policies,
- The Council's collective vision for addressing health inequalities,
- The TfL policy precedent Policy that bans advertising of product types rather than companies.

The initial barriers identified are:

- a relatively small proportion of the advertising space owned by Bristol Council,
- lack of workforce to implement and monitor the policy.

Three primary studies evaluated the TfL policy and report on facilitators and barriers [5-7]. Meiksin and colleagues report on a process evaluation of the design and implementation of this policy [6], and they identified a range of practical and political factors influencing the policy's development, design, and implementation.

- A short timeline between announcing and implementing the policy,
- The need to translate translating the concept of 'junk food' into operational policy to determine which products should be affected,
- legal considerations,
- uneven impacts on different industry actors,
- developing a policy that could be applied in a way the public would perceive as 'common sense',
- balancing health policy with the financial impact on TfL,
- the perceived influence of public perception and political motivations.

Facilitators were:

- consultation during policy development,
- close communication with industry stakeholders,
- building on existing policies,
- legal agreements,
- considering an exceptions process through which advertising requests could be reviewed.

Lauber and colleagues undertook a qualitative case study examining whether and how commercial actors attempted to influence the development of these advertising restrictions. [5] They identified substantial opposition from food and advertising industry actors to the TfL's advertising restrictions.

Sykes and colleagues present a realist evaluation investigating what works in the process of changing policies to restrict the advertising of HFSS products on council-owned spaces.[7] The evaluation findings seem relevant to the facilitators and barriers topic. Sykes and colleagues suggested that policy changes were driven by five dominant mechanisms:

- a strategic and staggered approach to stakeholder engagement,
- gathering intelligence,
- identifying policy champions,
- building relationships, and
- reframing the issue.

There were also two secondary mechanisms: amplifying the issue, and increasing public will.

Contextual factors influencing the change of advertising restriction policies included:

- having a named and resourced policy advocate in place,
- having existing aligned local objectives,
- organisational complexity and change,
- financial concerns,
- lack of local examples,
- ideological positions and
- the pandemic.

Indirect evidence

The second review included any policy that aimed to restrict ultra-processed foods consumption including food taxes, front-of-package labelling, and food marketing restrictions [3]. As reported, the key facilitators relate to the strong role of the government and civil society's efforts. The key barriers are a combination of the corporate political activities of the ultra-processed foods industry and weak government, vulnerable to commercial interests. This evidence is however ***indirectly relevant*** to this RES due to the wider scope of policies included.

4. References

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