

# Blueprint for halving obesity: rapid review

The impact of mass media campaigns  
on obesity-related outcomes



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## Summary table

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<b>Title</b>	<a href="#">Association of the LiveLighter mass media campaign with consumption of sugar-sweetened beverages: Cohort study</a>
<b>Author and year</b>	Morley et al. (2019)
<b>Type of study</b>	Cohort study (pre to post design)
<b>Outcome variable</b>	Frequency of consumption of sugar-sweetened beverages (SSBs) (number of days per week and occasions per day)
<b>Treatment</b>	Exposure to LiveLighter sugar-sweetened beverage (SSB) campaign
<b>Control</b>	No control group. Comparisons were pre and post exposure to campaign
<b>Magnitude of effect (Adults)</b>	6% reduction in proportion of participants reporting frequent consumption (4+ times per week) of SSBs in general adult population 8% reduction for adults who are living with overweight or obesity
<b>Magnitude of effect (Children)</b>	Not available

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## Rapid umbrella review

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### Background

The pervasive influence of mass media in shaping public perceptions, attitudes, and behaviours makes it a potentially powerful tool for public health intervention ([Noar, 2006](#)). The largest evidence base on their impact as a public health intervention has been around tobacco control, sexual health and physical activity. This evidence is mixed but indicates such approaches can work under certain circumstances. Moreover, while these campaigns might not directly induce behavioural change, they do exhibit a capacity to enhance knowledge and raise awareness among the targeted audience ([Stead et al., 2019](#)).

### Objective

Against this background, mass media public awareness campaigns on obesity and dietary health themes have the potential to influence population level behaviour and contribute to reductions in diet-related ill health. For the purposes of this review, our interest was in interventions delivered via multiple media platforms. The aim of the current review is to summarise the best available evidence on the impact of mass media campaigns on BMI, obesity/weight status or on dietary consumption.

### Methods

We aimed to identify and synthesise reviews that include quantitative research synthesis of the impact of mass media campaigns on outcomes related to weight gain/loss and obesity status, in addition to dietary behaviours such as food consumption/purchasing. If more than one review were identified that answered our research question, we aimed to identify the review that was reflective of the best evidence, based on (a) suitability to the research question, (b) year published and (c) quality of review (judged by JBI checklist).

## Eligibility criteria

*Types of review.* To be eligible for inclusion, articles were required to use systematic review methodology (ie, use of systematic search and inclusion strategy to identify all available studies) and include quantitative data synthesis (ie, meta-analysis) of multiple studies that examined the effect of mass media campaigns on outcomes relevant to calorie consumption, weight loss, or obesity. If the search did not identify any studies where a meta-analysis was conducted due to heterogeneity of outcomes, we planned to include reviews with narrative synthesis. We did not set inclusion criteria on the number or type of databases searched.

*Participants.* To be eligible for inclusion, articles were required to examine the effect of mass media campaigns on outcomes relevant to calorie consumption, weight loss, or obesity. Findings would be split by adults/children where different effects were available.

*Intervention.* We defined the intervention as exposure to mass media campaigns. All types of experimental data could be included with no restrictions.

*Comparator.* The comparator group should be individuals who were not exposed to mass media campaigns.

*Outcomes.* To be eligible for inclusion, reviews were expected to include either clinical (eg, weight, BMI, % fat change) or behavioural outcomes (including, but not limited to: eating behaviour, food diaries). Outcomes could also include change in obesity prevalence rates after exposure to a mass media campaign. Reviews that only include measures of intentions/plans for future behaviour were excluded due to evidence of the gap between intended and actual eating behaviour.

## Information sources and article selection

The search strategy was designed to identify syntheses of research evidence such as systematic reviews between the year 2010 and the date of search. Initial keywords were identified via a scoping review of relevant papers and reports as well as via MEDLINE using the MeSH function. A search was performed in the PubMed and the Cochrane Database of Systematic Reviews. We searched grey literature on the

Cochrane Database, Google Scholar, Google, and World Cancer Research Fund International's NOURISHING policy database to identify relevant reports.

### Screening

Due to the rapid nature of the reviews, a single reviewer screened titles and abstracts and discussed any uncertainty with a second reviewer. For relevant titles/abstracts, the full text was retrieved for full text review. One reviewer reviewed full texts and discussed uncertainties with the project lead (who is an expert in evidence synthesis and obesity research).

### Assessment of methodological quality

All relevant reviews were critically appraised by two reviewers individually using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses. We selected the highest quality and up-to-date review for data extraction.

### Article selection

If the search identified more than one review that included meta-analysis with a pooled effect size, we intended to select the single review that best represented our research question. If there was equal suitability to the research question across the reviews, we then made a selection based on the JBI quality rating taking year of publication into consideration (with more up-to-date reviews being seen as more favourable due to the probable inclusion of more studies). If the search did not identify any reviews that included a meta-analysis/pooled effect size we used one of the following:

- a published evaluation of a policy reported on the NOURISHING database
- an Impact Assessment that had been published by a UK (or devolved) government that had been conducted in partnership with an academic institution
- the highest quality evidence from individual studies reported in a narrative synthesis.

We made the decision based on what we considered to be the most appropriate and robust evidence to answer the research question.

## Data extraction

The JBI Data Extraction Form for Review for Systematic Reviews and Research Syntheses was used for data extraction.

Characteristics attached to the review report included:

- Review characteristics: author/year, objectives, participants (characteristics, total number), setting/context, interventions of interest, date range of included studies, detailed description of the included studies (number/type/country of origin), appraisal instrument and rating, type of review/method of analyses and outcomes.
- Results: findings of the review and comments.

## Results

A review by [Kite et al. \(2018\)](#) aimed to evaluate mass media campaigns focused on preventing overweight and obesity, but their focus was on the quality of the campaigns and their associated evaluations, and whether campaign success would be determined by adherence to best practice principles. The inclusion of both qualitative and quantitative methodologies and the absence of specified outcomes of interest meant the review was unsuitable to address the Blueprint research questions. A more recent review by [Abril and Dempsey \(2019\)](#) aimed to assess the effectiveness of mass media healthy eating campaigns on diet and consumption behaviour. However, this review's failure to report any clear outcome measures for included studies and a low rating according to the JBI checklist meant it was also regarded as unsuitable.

As there were no suitable systematic reviews for addressing the research question, we selected instead [Morley et al. \(2019\)](#), a cohort study evaluating the impact of the LiveLighter Sugary Drinks Campaign. This was an Australian mass media campaign aimed at reducing sugary drink intake. Its evaluation represents the best available published evidence on the impact of a mass media campaign on obesity-related outcomes. This study was included in the Abril and Dempsey (2019) systematic review.

This is a non-exhaustive summary of the methodology and findings. Please see the [original article](#) for more detail missing here. The evaluation aimed at assessing population level impact of a campaign on the consumption of SSBs. The central motif of the LiveLighter campaign was graphic imagery of visceral fat around major organs of the body. The evaluated phase of this intervention/campaign was a national TV advertisement showing this image with messaging about the contribution of sugary drinks to visceral fat and disease. The campaign ran for six weeks.

## Evaluation methodology

A telephone survey of 1,504 randomly selected Western Australian adults was carried out before and after the campaign. Respondents were asked about their consumption of SSBs, in addition to other questions about attitudes and beliefs, and campaign recognition and awareness.

The main outcome measure of interest was frequency of SSB consumption. At both time points, participants were asked how many days over the previous seven days had they consumed an SSB, as well as how many times per day an SSB had been consumed. Multivariable logistic regression models with a repeated measures design were used, employing a population-average approach to estimate variations in consumption over time. Interaction terms tested whether changes over time varied according to BMI.

## Results

Approximately 50% of respondents consumed SSBs at least once a week before and after the campaign. The changes over time varied significantly by BMI ( $p = .005$ ). Respondents who were categorised as living with overweight or obesity were less likely to drink SSBs at least once per week at Time 2 compared to Time 1 (OR = 0.47; 0.26-0.85;  $p = 0.013$ ). There were no differences across time for those who were not overweight (OR = 1.80; 0.89-3.64;  $p > 0.05$ ).

Frequent SSB consumption (4+/week) was significantly reduced for all between Time 1 and Time 2 (22% cf. 16%;  $p = 0.003$ ). The authors reported an absolute 6% point reduction in frequent SSB consumption among adults overall (Time 1: 21.9% to Time



2: 15.5%) and an 8% point reduction among adults with overweight or obesity. There was no interaction with BMI over time.

The authors' strong conclusion that it was the LiveLighter mass media campaign that resulted in a change in consumption may be overstated, especially when background decreases in consumption were observed.