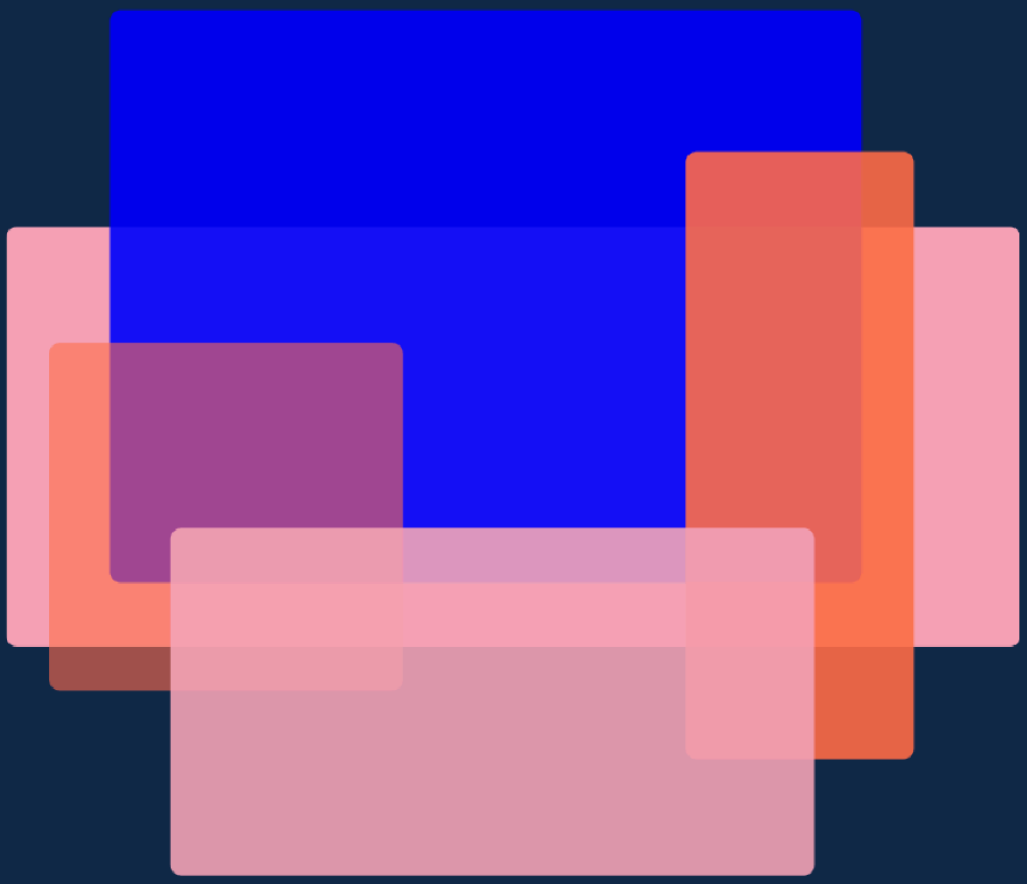
Blueprint
by nesta

Blueprint for halving obesity: rapid review

Volume and price promotions



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Contents

Summary table **2**

Rapid umbrella review **3**

Background 3

Objective 3

Method 3

Results 6

Appendices **9**

Summary table

Title	Impact assessment: Restricting volume promotions for high fat, sugar, and salt (HFSS) products			
Author and year	Department of Health and Social Care (2019)			
Type of study	Impact assessment			
Outcome variable	Calories purchased			
Treatment	End all volume offers for: HFSS products in a narrow list of Discretionary Food and Drink in the retail sector excluding SMEs	HFSS food and drink contributing to children's diets and childhood obesity excluding small and micro businesses	HFSS food and drink items contributing to children's diets and childhood obesity excluding micro businesses	HFSS food and drink items in the full list excluding small and micro businesses
Control	No intervention	No intervention	No intervention	No intervention
Magnitude of effect (Adults)	2.3kcal/day	2.6kcal/day	2.78kcal/day	3.11kcal/day
Magnitude of effect (Children)	2.11kcal/day	2.48kcal/day	2.56kcal/day	2.86kcal/day
Notes	For modelling the impact of volume promotions (policy 4a), we will use the figure highlighted in the green column above as it was the preferred option of intervention put forward in the DHSC (2019) report.			

Rapid umbrella review

Background

The UK Government has passed legislation to ban multibuy deals on foods and drinks high in fat, salt, or sugar (HFSS) – including buy one get one free (BOGOF), '3 for 2', and restrictions on free refills for soft drinks, although the rollout of these measures has been delayed. This was due to concerns about the effect of the ban on food prices during the cost of living crisis.

Objective

To summarise the best available evidence of the effect of volume promotions on calorie consumption.

Method

We aimed to identify and synthesise reviews that include quantitative research synthesis of the effectiveness of volume promotion restriction of unhealthy food and drink on outcomes relevant to calorie consumption, weight loss, or obesity. If more than one review was identified that answered our research question, we aimed to identify the review that was reflective of the best evidence, based on (a) suitability to 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 restricting volume promotions of unhealthy food and drink on outcomes relevant to calorie consumption, weight loss, or obesity outcomes.

If the search did not identify any studies where a meta-analysis had been conducted due to heterogeneity of outcomes, we included reviews with narrative synthesis. We did not set inclusion criteria on the number or type of databases searched.

We selected a single review that best represented our research question. If more than one review was identified, we assessed the quality and selected the one with the highest rating (taking into account year of publication).

Participants. We included reviews which included adults, and if available, adolescents and children. We did not restrict our search by geography.

Intervention. Reviews synthesised studies which examined the effect of volume promotions on purchasing, calorie consumption, or obesity and body weight outcomes. We included studies of both online and real-world settings.

Outcomes. To be eligible for inclusion, reviews included purchasing, BMI, weight, body composition, or food intake as an outcome.

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 PubMed and the Cochrane Database of Systematic Reviews. We searched grey literature on the Cochrane Database, INFORMAS, Google Scholar, Google, and World Cancer Research Fund International's NOURISHING policy database to identify relevant reports. See appendix 1, 2 and 3 for search strategies.

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 selected 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-analyses/pooled effect size we did one of the following:

- used a published evaluation of a policy reported on the NOURISHING database
- used an Impact Assessment that had been published by a UK (or devolved) government that had been conducted in partnership with an academic institution
- used 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 for the final included review. Extracted characteristics 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

This review is based on the findings from an impact assessment by the UK Government, 'Restricting volume promotions for high fat, sugar, and salt (HFSS) products', as it was felt that this best addressed the research question. No reviews, systematic or otherwise, were found on the topic.

UK Government impact assessment

This impact assessment evaluates several policy options to restrict volume promotions on HFSS food and drink in England. The impact assessment estimates the effect of restricting volume promotions on calorie consumption, cost to business, and cost to the Government.

Methods

The impact assessment uses the following steps to estimate the reduction in calories from restricting volume promotions on HFSS products:

- Estimate the proportion of total food and drink sales generated by volume promotions on HFSS products, using consumer panel data from Kantar. This represents the sales 'at risk' from the policy.
- Make assumptions about how retailers and consumers may respond to a restriction of volume promotions, eg, retailers switching promotions to price cuts, consumers compensating with other products. This gives the expected net change in HFSS sales and non-HFSS sales.
- Take the current average calorie intake for each age/gender group from the National Diet and Nutrition Survey (NDNS) and adjust upwards by 32% to account for underreporting.
- Apply the percentage change in sales volumes to calorie intake to estimate change in calorie consumption.

See the impact assessment for a more detailed description of methods.

Results

We take our calorie reduction estimates from: "Policy Option 2 – End all volume offers for HFSS products which contribute significant sugar and calories to children's diets and are of most concern for childhood obesity, in the retail sector excluding small and micro businesses" as this was the option chosen by the UK Government.

Estimates for the reduction in calories are given by sex and age group. These results are presented in table 1. In addition, the average daily calorie reduction (which we calculated by averaging across the age and sex groups in table 1), is also shown below (table 2).

Table 1: Expected daily calorie reduction by age-gender subgroups

Gender	Males				Females			
Age	**4-10**	**11-18**	**19-64**	**65+**	**4-10**	**11-18**	**19-64**	**65+**
Net calorie reduction (kcal)	2.34	2.97	3.24	2.82	2.15	2.48	2.45	2.29

Table 2: Our calculated simple averages of daily calorie reduction

	Males	Females	Combined (Males and females)
Children (aged 4-18 years)	2.66	2.32	2.49
Adults (aged 19-65+ years)	3.03	2.37	2.7

Appendices

Appendix 1: PubMed search strategy

No.	Concept	PubMed search terms
1	**Volume promotions**	multipack* [tiab] OR multipack* [tiab] OR multi-buy [tiab] OR multibuy [tiab] OR multi-unit [tiab] OR multiunit [tiab] OR "multi unit" [tiab] OR "multi buy" [tiab] OR "multi pack" [tiab] OR "buy one get one free" [tiab] OR "buy-one-get-one-free" [tiab] OR "three for two" [tiab] OR "3 for 2" [tiab] OR "combination offer" [tiab] OR "linked offer" [tiab] OR "volume promotion" [tiab] OR "volume discount" [tiab]
2	**Food and drink**	"Food" [Mesh] OR "Food and Beverages" [Mesh] OR "Food Preferences" [Mesh] OR "Diet, Food, and Nutrition" [Mesh] OR "Fast Foods" [Mesh] OR "Snacks" [Mesh] OR Food* [tiab] OR Foodstuff* [tiab] OR Snack* [tiab] OR Nutrition* [tiab] OR Diet [tiab]
3	**Purchasing**	purchas* [tiab] OR buy [tiab] OR buying [tiab] OR sale* [tiab]
4	**Calorie intake**	"Energy Intake" [Mesh] OR "Calorie consumption" [tiab] OR Calori* [tiab] OR "Calories consumed" [tiab] OR "Calorie intake" [tiab] OR "Caloric intake" [tiab] OR "Energy" [tiab] OR "Energy Intake" [tiab] OR "Food consum*" [tiab] OR kcal [tiab] OR kj [tiab]
5	**Weight and obesity outcomes**	"Obesity"[Mesh] OR "obesity"[tiab] OR "overweight"[tiab] OR "over-weight"[tiab] OR "Weight" [tiab] OR BMI OR "body composition"
6	**Systematic review**	systematic* [tiab] OR meta-analys* [tiab] OR "narrative synthesis"[tiab]
7	**Full search**	#1 AND (#2 OR #3 OR #4) AND #5 AND #6

Appendix 2: Cochrane Database search

"Volume promotions calorie obesity"

Appendix 3: Google Search and Scholar

"Effect of volume promotions on calorie consumption and obesity"