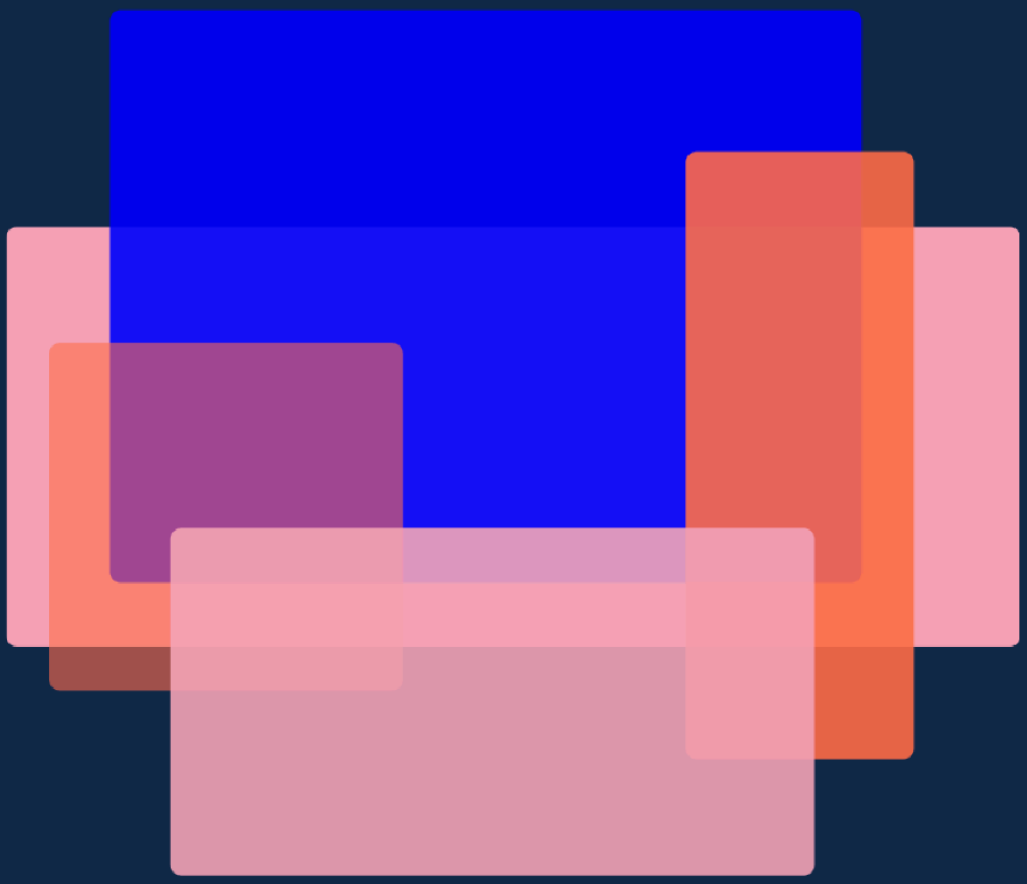
Blueprint
by nesta

Blueprint for halving obesity: rapid review

Individually targeted behavioural weight management programmes as an intervention for adults with obesity



Authors: Dr Kate Tudor, Alex Eastaugh and Katherine Parkin

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Summary table

Title	Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial	Early outcomes of referrals to the English National Health Service Digital Weight Management Programme	Long-Term Effect of Weight Regain Following Behavioral Weight Management Programs on Cardiometabolic Disease Incidence and Risk: Systematic Review and Meta-Analysis
Author and year	Aveyard et al. (2016)	Taylor et al. (2024)	Hartmann-Boyce et al. (2023)
Type of study	Randomised controlled trial	Service evaluation	Systematic Review and Meta-analysis
Outcome variable	Mean difference in weight (12 month follow-up)	Mean weight change after 12-week intervention	Weight regain per year
Treatment	GP opportunistic referral to free weight-loss programme (eg, Slimming World)	NHS England Digital Weight Management Programme	Behavioural weight-loss programmes
Control	GP offer of brief education about weight management	None	No intervention or lower intensity intervention
Magnitude of effect (Adults)	Treatment mean difference (12m): -2.4kg	-3.9kg [95% CI: -3.99 to -3.84]	Regain of approximately 0.12-0.32kg/year
Magnitude of effect (Children)	Not in scope of the study	Not in scope of the study	Not in scope of the study
Notes		For modelling the impact of this policy over 5 years, this effect size was used to estimate weight loss.	For modelling the weight regain associated with this policy over 5 years, the upper bound of this effect size (ie, 0.32kg/year) was used in order to provide more conservative impact estimates.

Rapid umbrella review

Background

Behavioural weight management programmes (BWMPs) are one of many potential interventions that have been shown to be effective in reducing obesity. BWMPs aim to achieve weight loss through changes to diet, physical activity, or both. Programmes include behavioural support components, such as motivational interviewing, establishing social support, and goal setting to support individuals with weight loss. The National Institute of Clinical Excellence (NICE) guidelines recommend the use of BWMPs for the treatment of adults with obesity, and some local authorities fund referrals to such programmes via NHS treatment pathways.

Objectives

To summarise the best available evidence of the effect of BWMPs without total diet replacement (TDR) on weight loss. (Of note, TDR is covered by a separate Blueprint review as TDR is a more intensive treatment.)

Methods

We aimed to identify reviews that included quantitative research synthesis (ie, meta-analysis) of the effectiveness of BWMPs on outcomes relevant to 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) year published and (b) quality of review. If an individual study better answered our questions regarding the longer-term effect, we would select that.

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 BWMPs on outcomes of interest. If the search did not identify any studies where a meta-analysis had been conducted due to heterogeneity of outcomes of interest, we would include reviews with narrative

synthesis. If a review did not exist, we would use the most applicable single paper that best represented our research question.

Participants. To be eligible for inclusion, articles had to examine the effect of a BWMP (without TDR) on adults with obesity. We used the World Health Organization's definition of obesity for adults.

Intervention. Interventions had to involve multiple contacts. We excluded programmes that involved the use of any surgery or weight-loss medications. Interventions incorporating other lifestyle changes, such as efforts at smoking cessation or reduction of alcohol intake, were not included. We excluded reviews that looked only at physical activity interventions with no dietary change. However, reviews that synthesise studies where some are physical activity only and some have both physical activity and nutrition support were included.

Comparator. No intervention or a lower intensity intervention (eg, brief education).

Outcomes. To be eligible for inclusion, reviews needed to include either clinical (eg, weight, BMI, % fat change) or behavioural outcomes (including, but not limited to: eating behaviour, food diaries). Reviews that only included 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 scoping 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 also searched grey literature using Google Scholar and Google to identify relevant reports. The search was run in January 2023 and consultation with our expert advisory group (EAG) took place in June 2025 (details explained below).

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 the full texts and discussed uncertainties with a second reviewer.

Assessment of methodological quality

We aimed to select the highest quality and up-to-date review for data extraction (focusing on publications from 2010 onwards). Suitability to our research question was also taken into account when selecting the final review for extraction. The Blueprint Expert Advisory Group reviewed our identified papers and made recommendations for the inclusion of more appropriate evidence that our search had not identified.

Data extraction

The following information was extracted:

- Review/study characteristics: author/year, objectives, participants (characteristics, total number), setting/context, interventions of interest.
- Results: findings of the review/study and comments.

Consultation with Expert Advisory Group (EAG)

In addition to conducting literature searches, we also consulted with the Blueprint EAG in order to determine the most suitable paper for modelling the impact of this intervention. The final paper selection was based on these discussions.

Results

Following literature searches and consultation with the EAG, the following sources were identified: Aveyard et al. (2016), Hartmann-Boyce et al. (2023), and Taylor et al. (2024). These are briefly described below; for full details, see the original papers. Taylor et al. (2024) was selected as the most appropriate source of evidence for our research question on weight loss, given it evaluated the effectiveness of BWMPs and did so in a way that is representative of how these services are delivered in routine practice. Hartmann-Boyce et al. (2023) was selected to model weight regain following BWMPs.

Aveyard et al. (2016). Screening and brief intervention for obesity in primary care; a randomised controlled trial

This study is a well-powered individually randomised controlled trial testing the effectiveness of primary care referral of people living with obesity to a 12-week behavioural weight-loss programme. The trial involved 137 primary care doctors in England, who screened patients for obesity. To be eligible, participants had to be 18 years or older with a body mass index (BMI) of 30 or higher (or 25 or higher for those of Asian ethnicity) and have a raised body fat percentage.

After the screening, patients were randomly assigned to one of two interventions. In the active intervention, the doctor referred the patient to a weight management group, which included 12 weekly sessions of one hour each. If the patient accepted the referral, the doctor helped them make an appointment and offered follow-up support. In the control group, the doctor simply told the patient that losing weight would benefit their health, without offering any further support or referrals.

This trial sought to establish whether physician brief intervention was acceptable and effective for reducing body weight in patients living with obesity. The study also looked at how comfortable patients felt discussing their weight with their doctor during other visits. Furthermore, it explored how much weight participants lost after 12 months. The results were measured without knowing which group the patients were in to ensure fairness. No safety concerns were expected since the interventions didn't involve medication or risky procedures.

The study found that 40% of people who received a referral from their general practitioner to a weight-loss programme decided to attend the programme. After 12 months, the average weight loss of people who received this opportunistic intervention from the doctor was 2.4kg in weight.

Hartmann-Boyce et al. (2023). **Long-Term Effect of Weight Regain Following Behavioral Weight Management Programs on Cardiometabolic Disease Incidence and Risk: Systematic Review and Meta-Analysis**

A subsequent meta-analysis examining weight regain in people who have previously attended weight-loss programmes showed that following BWMPs, weight regain occurred at 0.12 to 0.32 kg/year more than comparators. From this range, we use 0.32 kg/year as our estimate for weight gain to avoid overestimating policy impact and maintain a conservative approach.

Taylor et al. (2024). Early outcomes of referrals to the English National Health Service Digital Weight Management Programme

This article was recommended for inclusion by the Blueprint Expert Advisory Group (EAG). It is an evaluation of a digital/remote intervention for weight management delivered on a national scale. It was thought that, although in digital/remote form the intervention may be less effective, it is more realistic for scalability, and thus more accurately represents routine service delivery.

What were the study methods?

To test the effectiveness of the NHS Digital Weight Management Programmes, a service evaluation was conducted of those referred into the programme between April 2021 and March 2022 in England. The criteria for adults to be referred was a BMI of 30 or higher (adjusted to a BMI of 27.5 or above for people from Black, Asian, and minority ethnic groups) and a diagnosis of hypertension and/or diabetes.

Prospectively collected, national service-level data was used. The service was accessible via direct referral from any general practice in England, and those referred were triaged to one of three intervention intensities, with level 1 being mostly self-guided and level 3 having the most contact hours. The level the individual was triaged to was informed by the likelihood of completing the programme, based on demographic characteristics. The intervention took 12 weeks to complete.

What did the study find?

The mean weight change for those who completed the programme (defined as attending ≥60%/a minimum of 7 of the 12-week programme) and had no missing data for demographic characteristics or weight was -3.9kg [95% CI: -3.99 to -3.84]. Of those, 31% experienced weight loss of 5% or greater from their baseline weight. Regression analysis further found that, for each additional week of participant engagement, there was 0.44kg greater weight loss. Older age was associated with increased weight loss compared to younger age, and Asian and 'Other' ethnicity was associated with smaller weight loss compared to White ethnicity. These are consistent with findings in other national weight management interventions. There were no significant differences by sex or quintiles of deprivation.

The study's findings provide supporting evidence that the programme has a positive influence on weight change in adults living with obesity and associated comorbidities and provides an effective and acceptable delivery method to support weight management on a national scale for individuals of different demographic characteristics. However, for potential population-level benefits of the programme to be realised, increased access, participation, and take-up are required.

Modelling the impact of this policy

Based on the above findings, when modelling the impact of this intervention, we assumed that 45% of the people who enrolled, after a referral from their doctor, would complete the programme and experience an average weight loss of 3.9kg. Subsequently, they would experience 0.32kg weight regain per year (ie, a conservative estimate of the regain range 0.12-0.32kg provided by Hartmann-Boyce et al. (2023)).

Appendix

Appendix 1: Search strategy

No.	Concept	PubMed Search Terms
1	**Behavioural weight management programme**	"Diet, Reducing"[Mesh] OR "Diet Therapy"[Mesh] OR "Weight Reduction Programs"[Mesh] OR "weight management program*"[tiab] OR "weight management plan"[tiab] OR "weight loss program*"[tiab] OR "weight loss plan"[tiab] OR "behavioural weight loss program*"[tiab] OR "behavioural weight management program*"[tiab]
2	**Calorie intake (/other outcomes related to obesity)**	"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 consumption" [tiab] OR "Food consumed" [tiab] OR "Weight" [tiab] OR BMI [tiab] OR "weight loss" [tiab]
3	**Individuals with obesity**	"Obesity"[Mesh] OR "obesity"[tiab] OR "overweight"[tiab] OR "over-weight"[tiab]
4	**Systematic review**	"systematic review"[tiab] OR "systematic*"[tiab] OR "meta-analys*"[tiab] OR "narrative synthes*"[tiab]
5	**Full search**	#1 AND #2 AND #3 AND #4