Cognitive behavioural therapy for weight loss

Matrix Insight, in collaboration with Imperial College London, Kings College London and Bazian Ltd, were commissioned by Health England to undertake a research study to develop and apply a method for prioritising investments in preventative interventions for England. Seventeen preventative health interventions were included in the study. Each intervention was evaluated in terms of the following criteria: reach; inequality score; cost-effectiveness; and affordability. This report presents the results of the analysis for one of the interventions: cognitive behavioural therapy for weight loss. The full report of the study is available from the ***H.E.L.P.*** website.

Summary

Description of the intervention
A combined treatment of very low calorie diet and behavioural therapy, compared to very low calorie diet alone. The duration of treatment was six months. Individuals were prescribed a 400-500 kcal/day protein-sparing modified fast for two months and a 1000-1200 kcal/day diet for the remainder of treatment, and they received instruction in behavioural methods of weight control (Wadden et al, 1989).

Cost effectiveness

The cost-effectiveness of this intervention has not been estimated given that the intervention is not effective. This effect was obtained from a review undertaken to identify evidence on the effectiveness and cost-effectiveness of cognitive behavioural therapy for weight loss. The review identified one randomised controlled study (Wadden et al, 1989) and one economic study (NICE, 2007) that complied with the criteria to select effectiveness evidence. Both studies refer to the same intervention. NICE (2007) built an economic model of the 12-month effect reported by Wadden et al (1998). However, as reported by Wadden et al (1998) the long-term impact of the intervention, given by the effect at a 5 year follow-up period, indicates that the intervention is not effective..

Please refer to effectiveness evidence for more details on the criteria for selecting effectiveness evidence and the reviewed studies.

Effectiveness evidence

A literature review was undertaken by Bazian to identify evidence on the effectiveness and cost-effectiveness of cognitive behavioural therapy for weight loss. Further details are available on the evidence methods page of the ***H.E.L.P.*** website.

The review of the evidence on the effectiveness of cognitive behavioural therapy for weight loss identified one randomised controlled study and one systematic review. Table 1 provides the following details of the studies identified:

- Population
- Intervention
- Results

The review of the evidence on the cost-effectiveness of cognitive behavioural therapy for weight loss identified one economic study. Table 2 provides the following details of the studies identified:

- Population, intervention and model
- Perspective, discounting, inflation, cost year
- Utility/benefit
- Unit costs
- Efficiency

Table 3, Table 4 and Table 5 provide a quality assessment of the studies. Further details are available on the quality appraisal methods page.

The following criteria were applied to select effectiveness evidence for undertaking the economic analysis:

- Location. Studies from the UK were preferred over studies from other locations.
- Population. Studies applied to the general population were preferred over studies applied to restricted population groups (e.g. pregnant women; individuals from specific communities/nationalities).
- Counterfactual. Studies for which the counterfactual intervention was ‘usual care’ or ‘do nothing’ in a UK setting were preferred over studies for which the counterfactual was different from ‘usual care’ or ‘do nothing’.
- Method. Studies using more rigorous design methods (e.g. randomised controlled trials or quasi experimental designs with regression models controlling for confounders) were preferred over studies using less rigorous design methods (e.g. before-after studies or simple correlation analysis).
- Follow-up period. Studies with follow-ups at 12 months or more were preferred over studies with shorter follow-up periods. For studies with more than follow-up period the longest was considered the most appropriate.

Table 1. Effectiveness of cognitive behavioural therapy for weight loss

Study reference	Population	Intervention	Results
Wadden et al, 1989; USA ▪ randomised controlled trial	76 obese women (mean age 42.1 years and 106kg).	*Intervention* ▪ RCT with three arms: very low calorie diet alone; behavioural therapy alone or a combination (combined treatment). Subjects in the first condition were treated weekly for 4 months, while those in the other two conditions were treated weekly for 6 months. People receiving behavioural therapy alone were prescribed a 1200kcal/day diet for the 6 months of the study while those in the other two groups were on 400 to 500 kcal/day protein-sparing diet for the first 2 months and then 100 to 1200kcal/cay diet for the remainder of treatment. Weight change was evaluated at 1, 3 and 5 years	▪ Weight loss at 12 months in very low calorie diet group compared to combined diet and CBT: -10.6 kg in combined group vs. -4.7 kg with diet alone ▪ Relative weight loss at 12 months: -8.19 kg
Shaw et al, 2005; Australia ▪ systematic review and meta-analysis	Various	*Intervention* ▪ Cognitive-behaviour therapy combined with a diet / exercise intervention *Control* ▪ Diet / exercise alone	Mean change in weight (6 months or less): -4.85 kg (95% CI -7.31 to 2.38)

Table 2. Cost-effectiveness of cognitive behavioural therapy for weight loss

Study reference	Population, intervention and model	Perspective, discounting, inflation, cost year	Utility/benefit	Unit costs	Efficiency
NICE, 2007 (economic modelling which used effectiveness result from Wadden et al, 1989)	Patient level simulation model designed to estimate costs associated with behavioural treatment (estimated to be represented largely by the costs of the staffing resources). Diet and behavioural treatment (14 extra contacts; 90 minute contacts with a clinical psychologist) vs. diet only.	Health sector (just staff costs)	Incremental QALY 0.058361	Total unit cost of intervention: £672 / patient Incremental costs: £626.13 Costing of intervention based on the following unit costs of healthcare professionals: Dietician: £27 per hour Physiotherapist: £28 per hour Clinical psychologist: £32 per hour	▪ Cost/effect: £82.05 per kg lost ▪ ICER £10,729

Table 3. Quality assessment for meta-analysis

Study reference	QA for meta-analysis			Score	Grading (++ 3; + 2; -1)
	Search and inclusion criteria?	Quant data each study?	Assessment of quality data?		
Shaw et al, 2005	Yes	Yes	Yes	3	++

Table 4. Quality assessment for effectiveness studies

Study reference	QA for trials/RCTs					Score	Grading (++ 4-5; + 3; -0-2)
	Follow-up	Intention to treat?	Attrition	Groups similar or controlled?	Randomised?		
Wadden et al, 1989	Yes	No	Yes	Yes	Yes	4	++

Table 5. Quality assessment for economic studies

Study reference	QA for economic studies						Score	Grading (++ 4-6; + 3; -0-2)
	All costs of intervention included?	Market values used for costs?	Perspective reported?	Sensitivity analysis?	Reports base year adopted?	Effectiveness data from RCT or MA?		
NICE, 2007	Don't know	Don't know	Yes	Yes	Yes	Yes	4	++

References

NICE (2007) Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children. Economics review: Full guideline: Section 6: Health economics. CG43. London: National Institute for Health and Clinical Excellence.

Shaw, K., O'Rourke, P., Del, M.C., Kenardy, J. (2005) Psychological interventions for overweight or obesity, *Cochrane Database System Rev*, Nr.2, CD003818.

Wadden, T.A., Sternberg, J.A., Letizia, K.A., Stunkard, A.J., Foster, G.D. (1989) Treatment of obesity by very low calorie diet behavior therapyand their combination: a five-year perspective, *Int J Obes*, Vol.13, Nr.2, 39 - 46pp.