Transtheoretical model stages of change for dietary and physical exercise modification in weight loss management for overweight and obese adults

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Authors' objectives

Background: Obesity is a global public health threat. The transtheoretical stages of change (TTM SOC) model has long been considered a useful interventional approach in lifestyle modification programmes, but its effectiveness in producing sustainable weight loss in overweight and obese individuals has been found to vary considerably. Objectives: To assess the effectiveness of dietary intervention or physical activity interventions, or both, and other interventions based on the transtheoretical model (TTM) stages of change (SOC) to produce sustainable (one year and longer) weight loss in overweight and obese adults.

Search methods: Studies were obtained from searches of multiple electronic bibliographic databases. We searched The Cochrane Library, MEDLINE, EMBASE and PsycINFO. The date of the last search, for all databases, was 17 December 2013.

Selection criteria: Trials were included if they fulfilled the criteria of randomised controlled clinical trials (RCTs) using the TTM SOC as a model, that is a theoretical framework or guideline in designing lifestyle modification strategies, mainly dietary and physical activity interventions, versus a comparison intervention of usual care; one of the outcome measures of the study was weight loss, measured as change in weight or body mass index (BMI); participants were overweight or obese adults only; and the intervention was delivered by healthcare professionals or trained lay people at the hospital and community level, including at home.

Data collection and analysis: Two review authors independently extracted the data, assessed studies for risk of bias and evaluated overall study quality according to GRADE (Grading of Recommendations Assessment, Development and Evaluation). We resolved disagreements by discussion or consultation with a third party. A narrative, descriptive analysis was conducted for the systematic review.

Main results: A total of three studies met the inclusion criteria, allocating 2971 participants to the intervention and control groups. The total number of participants randomised to the intervention groups was 1467, whilst 1504 were randomised to the control groups. The length of intervention was 9, 12 and 24 months in the different trials. The use of TTM SOC in combination with diet or physical activity, or both, and other interventions in the included studies produced inconclusive evidence that TTM SOC interventions led to sustained weight loss (the mean difference between intervention and control groups varied from 2.1 kg to 0.2 kg at 24 months; 2971 participants; 3 trials; low quality evidence). Following application of TTM SOC there were improvements in physical activity and dietary habits, such as increased exercise duration and frequency, reduced dietary fat intake and increased fruit and vegetable consumption (very low quality evidence). Weight gain was reported as an adverse event in one of the included trials. None of the trials reported health-related quality of life, morbidity, or economic costs as outcomes. The small number of studies and their variable methodological quality limit the applicability of the findings to clinical practice. The main limitations include inadequate reporting of outcomes and the methods for allocation, randomisation and blinding; extensive use of self-reported measures to estimate the effects of interventions on a number of outcomes, including weight loss, dietary consumption and physical activity levels; and insufficient assessment of sustainability due to lack of post-intervention assessments.

Authors’ conclusions: The evidence to support the use of TTM SOC in weight loss interventions is limited by risk of bias and imprecision, not allowing firm conclusions to be drawn. When combined with diet or physical activity, or both, and other interventions we found very low quality evidence that it might lead to better dietary and physical activity habits. This systematic review highlights the need for well-designed RCTs that apply the principles of the TTM SOC appropriately to produce conclusive evidence about the effect of TTM SOC lifestyle interventions on weight loss and other health outcomes.


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