Behavior change interventions delivered by mobile telephone short-message service
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CRD summary
This review examined preliminary evidence of health behaviour change interventions delivered by mobile telephone short-message service (SMS), concluding that text-message delivered interventions have positive short-term behavioural outcomes, although further research of higher quality in this area is required. Given the potential for bias, the conclusion that SMS-delivered interventions have positive short-term benefits may not be reliable.

Authors' objectives
To review the preliminary evidence of health behaviour change interventions delivered by mobile telephone short-message service (SMS).

Searching
MEDLINE, ERIC, Web of Science and PsycINFO were searched for relevant English language publications from peer-reviewed scientific journals published between January 1990 and March 2008. Search terms were reported.

Study selection
Studies were eligible for inclusion in the review if they evaluated an intervention delivered primarily via mobile phone short-message service (or text message) and assessed a change in health behaviour using a pre-post design or a controlled study design.

Included studies used mobile phone text-message service for preventative health care (smoking cessation, increasing physical activity, anti-obesity behaviour modification) or to support ongoing clinical care behaviour change (diabetes and asthma self-management, hypertension medication compliance, hypertension self-management in diabetes patients, bulimia nervosa outpatient care). Most studies used personally tailored health messages. Intervention length ranged from six weeks to one year.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
For each study, the level of mobile telephone short-message service interactivity between researcher and participant was rated as nil, low, moderate, or high, based on the rate of messages sent. Results were classified as having a positive or neutral impact on behavioural outcomes. For studies with a control group, effect sizes were calculated.

Methods of synthesis
Studies were combined in a narrative synthesis.

Results of the review
A total of 14 studies were included in the review (n=3,512 participants). Sample sizes ranged from 10 to 1,705 participants. Eight studies were randomised and six were single group pre-post design studies. Loss to follow-up ranged from 0% to 57%.

Eight studies reported statistically significant positive behavioural changes, five reported statistically non-significant positive trends, and one reported no positive changes.

Six studies provided sufficient data to calculate effect sizes, which ranged from 0.09 to 1.38. According to Cohen's criteria, two of these studies showed small effects (0.2), two showed medium-sized effects (>0.5), and two showed large effects (>0.8).

Authors' conclusions
Mobile phone text-message delivered interventions appeared to have positive short-term behavioural outcomes.
although further research of higher quality in this area is required.

**CRD commentary**

This review was based on a question broadly defined in terms of the interventions, outcomes, and study designs of interest. Multiple databases were searched to identify relevant studies, and attempts were made to minimise error and bias in selection. However, restricting inclusion to published English language studies may have led to language and publication bias. The use of a narrative synthesis was appropriate given the clear differences between included studies, but counting the number of studies reporting positive results was not an accurate method for evaluating effectiveness. Some aspects of methodological quality were discussed, but the validity of individual studies was not formally assessed. Although the authors’ conclusions are appropriately cautious, given the potential for bias among the selected studies, the conclusion that SMS-delivered interventions have positive short-term benefits may not be reliable.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors made several recommendations for future research on mobile phone short-message service (SMS) interventions for behaviour change, stating that future studies should: have an adequate sample size from representative populations; report process measures; describe the theoretical constructs being targeted; explore the impact of SMS initiation method and level of interactivity.

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