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ORIGINAL ARTICLE

# High or low intensity text-messaging combined with group treatment equally promote weight loss maintenance in obese adults

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## KEYWORDS

Obesity;  
Text-message;  
Weight loss  
maintenance;  
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therapy

## Summary

**Background:** Text-message and e-mail are emerging as potential methods for improving weight outcomes among obese individuals. The optimal volume, frequency, and timing of such interventions are unknown. This study investigated the effect of adjunct technological support on weight and psychological variables after a 3-month cognitive-behaviour therapy (CBT) group intervention.

**Methods:** Sixty obese adults were randomised to a CBT programme plus intensive (text-message and e-mail; CBT+ITS) or minimal (text-message only; CBT+MTS) technological support. Assessments occurred at baseline, 3-, 6-, 9-, and 15-months. Outcome variables included weight (kg), body mass index (kg/m<sup>2</sup>), waist circumference (cm), binge-eating tendencies, weight self-efficacy, and weight control cognitions and behaviours.

**Results:** CBT+ITS ( $n=31$ ) and CBT+MTS ( $n=29$ ) participants lost 5.2% ( $\pm 1.1$ ) and 4.7% ( $\pm 1.1$ ) of their baseline weight by 3-months, 8.4% ( $\pm 1.2$ ) and 6.4% ( $\pm 1.1$ ) by 6-months, 9.6% ( $\pm 1.3$ ) and 6.4% ( $\pm 1.3$ ) by 9-months, and sustained a 7.5% ( $\pm 1.3$ )

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and 5.1% ( $\pm 1.3$ ) loss at 15-months, respectively. There were no significant differences between intensive and minimal support, however, the CBT + ITS group showed a marginal advantage across all anthropometric measures.

**Conclusions:** A low intensity text-message support programme is just as effective as higher intensity technological support for maintaining weight loss in obese adults. This represents a low-cost means of aiding weight loss maintenance without reliance on extended face-to-face treatment.

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## Introduction

The high prevalence of obesity worldwide indicates a need for developing effective, accessible, and affordable treatments. Compounding this challenge is the chronic nature of obesity. Weight regain following all types of interventions remains a significant and unresolved problem. Well-executed, theoretically-informed, and empirically-driven efforts to improve weight loss maintenance have met with little success [1–3]. Interventions which do produce a modest degree of sustained weight loss tend to involve continuing contact with health care professionals throughout the duration of weight maintenance [4,5]. It is therefore important to explore low-cost intervention formats that minimise the need for ongoing face-to-face contact and associated costs, whilst improving long-term weight outcomes [6,7].

Technology-based interventions such as text-message and e-mail are increasingly being used in combination with standard treatment to improve outcomes in a range of health situations [8]. Text-messaging may provide a direct point of contact between health professionals and patients at any time and place, and a low-cost means of increasing the frequency of patient-to-therapist contact [9]. The portability and convenience of cellular telephones, and their high penetration across income and ethnic groups, and populations living in both urban and rural locations, allow for the easy integration of technological interventions into patients' lives [10–12]. There is preliminary evidence suggesting that text-messaging may enhance treatment acceptability, and improve patient self-monitoring, engagement, and attendance [13]. Text-messaging exploits the use of 'push' technology, where information can be transmitted without the need for patient-initiated contact, in contrast to other technological mediums that require individuals to access a website or call a telephone number [14].

Text-message technology has been successfully implemented in a variety of therapeutic domains [8,9]. For example, text-message interventions have been used to enhance self-management in those with diabetes and asthma [15,16]; improve medication compliance in patients with hypertension [17]; and provide advice, support, and distraction to aid smoking cessation [18]. However, research assessing the benefits of technological interventions on weight loss and weight loss maintenance is in its infancy. Previous trials of text-message contact in obese adults have found this approach to be significantly better at aiding weight loss than no contact [8], but not significantly more effective when compared to monthly e-newsletters containing diet and physical activity information [19]. E-mail counselling has also shown promise as a form of technology that may assist obese adults. However, both e-mail and text-message interventions only result in modest weight loss when employed in isolation [20,21]. It has been suggested that technological approaches may be more useful as adjunct interventions, especially when the aim is long-term weight loss maintenance [22]. This finding was reinforced in a recent meta-analysis of six studies, with a total of 1252 participants, that found patients in weight-loss programmes that included a text-messaging component lost on average seven times more weight than patients in conditions that did not include text-messaging (2.56 kg versus 0.37 kg, respectively) [23].

Despite the recommendation that technology be used in combination with standard face-to-face treatment to promote weight management, the optimal frequency and timing of text-message delivery is yet to be determined. A previous study has shown that overweight and obese adults who were provided with twice-weekly text-message support after 12 weeks of standard treatment achieved greater weight loss compared to controls who did not receive any text-message support and who gained weight [24]. In addition to

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