INTRODUCTION:

- Statistics Canada in 2010 states that over 4.5 million people were overweight or obese.
- The dramatic increase in obesity and its correlation with serious diseases has caused the World Health Organization (WHO) to declare an immediate need for effective and widely-accessible interventions.
- Cellular phone devices are portable, convenient, and popular among people of varying economic status and ethnicities, rendering this an ideal medium for a lifestyle intervention.

PURPOSE:

To determine the effectiveness of cellular phones for delivering weight loss interventions in the obese or overweight population.

METHODS:

- Literature Search: An electronic database search of MEDLINE, EMBASE, CINAHL, the Cochrane Library, Web of Science and PsycINFO was performed.
- Major search terms included: “overweight” or “obesity” and “weight loss” and “cellular phone”. The search strategy identified both published and unpublished studies and was limited to English.

Inclusion Criteria

1. Delivered a weight loss intervention using a cellular or mobile phone.
2. Reported absolute or percentage change in weight, BMI, waist circumference, body fat or any other proxy for weight loss.
3. Participants ≥ 18.
4. Participants BMI ≥ 25 kg/m²
5. Published in English.

Exclusion Criteria

- Systematic review, opinion pieces and editorial studies.

Table 1: Studies Inclusion and Exclusion Criteria

Data Extraction: All eligible studies were screened and underwent data extraction by two independent reviewers.

Any disagreements between the reviewers were resolved by a third independent reviewer.

Categorization of Studies:

1) One-way Interaction: the researcher could contact the participants, but the participants could not respond
2) Two-way Interaction: low - open communication between researchers and participants, with less than 14 interactions per week
3) Two-way Interaction: high - open communication between researchers and participants, with greater than or equal to 14 interactions per week

Table 2: Study Characteristics of Mobile-Phone Delivered Interventions for Weight Loss (2007- 2011)

<table>
<thead>
<tr>
<th>Authors and Country</th>
<th>Study Design</th>
<th>Sample Characteristics</th>
<th>Intervention</th>
<th>Results</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joo and Kim, Liverpool (2007)</td>
<td>One group</td>
<td>927 (Female=89%)</td>
<td>14.0 (±5.6) BMI; 59% (±10%) SG</td>
<td>A 12 week weight reduction program including behaviour modification, individually prescribed exercise and diet. Participants received a weekly SMS message on behaviour modification by mobile phone and an exercise reminder ticket for a week.</td>
<td>Weight: ES weight loss=1.14kg; SD=1.12. BMI: decrease of 0.12.</td>
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<tr>
<td>Aune et al., Sydney, Australia (2010)</td>
<td>Cluster RCT</td>
<td>90 (Female=51.2%)</td>
<td>4.0 (±1.7) BMI; 95% (±5%) SG</td>
<td>Group intervention: weekly text messages were given to reinforce nutrition, physical activity and behavioral change. The program ran for 42 weeks.</td>
<td>EG: increase of 1.62kg; CG: decrease of 1.5kg.</td>
</tr>
<tr>
<td>Joo et al., Seoul (2011)</td>
<td>Controlled trial</td>
<td>108 (Female=50%)</td>
<td>10.6 (±2.1) BMI; 60% (±14%) SG</td>
<td>A 12 week home based obesity control program including exercise, diet awareness group &amp; phone counseling. 2 health education sessions, and weekly SMS messages.</td>
<td>Structured exercise intervention (three 1-h walking classes per week) with an exercise coordinator as well as the same instruction and 2 health education sessions as the EG.</td>
</tr>
</tbody>
</table>

Figure 2: Identifying Studies For Inclusion

DISCUSSION:

- Overall level of evidence showed a Grade C in the one-way interactivity group as well as in the low frequency two-way interactivity group, and a Grade D in the high frequency two-way interactivity category
- Modest evidence was found for the effectiveness of mobile phones in the deliverance of weight loss interventions.

LIMITATIONS OF STUDIES:

- Quality of studies varied greatly.
- Weaknesses of studies include: high dropout rates, lack of randomization, small sample sizes, company-funded study, heterogeneity of sample populations, interventions, and control methods.

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