

**Table 1**

## Mobile Interventions for Obesity: Study Characteristics

| Authors (Year)        | Design | Theoretical Models  | Sample Size | Participants                                 | Trial length | Intervention/Control  | Technological Components          |
|-----------------------|--------|---|-------------|--|--------------|---|-----------------------------------|
| Fukuoka et al. (2010) | SGPP   | NM  | 41          | Sedentary women, mean age 48.4               | 3 weeks      | Mobile apps   | SM, feedback, goal setting        |
| Archer et al. (2012)  | RCT    | NM  | 197         | GP, 18–65 years                              | 9 months     | a. GWL<br>b. GWL + SWA<br>c. SWA<br>d. Standard Care  | SM                                |
| Rabin et al. (2011)   | DD     | NM  | 15          | GP, mean age 38.9 years                      | 1 week/app   | Mobile apps   | NM                                |
| Turner et al. (2011)  | RCT    | SCT   | 96          | GP, 18–60 years, BMI 25–45                   | 6 months     | a. Podcast<br>b. Podcast + mobile   | SM                                |
| Burke et al. (2012)   | RCT    | SCT   | 210         | GP, ≤59 years, BMI 27–43                     | 24 months    | a. PDA + feedback<br>b. PDA<br>c. Paper diary   | SM, CFC, SP                       |
| Allen et al. (2013)   | RCT    | SCT   | 68          | GP, 21–65 years, BMI 28–42                   | 6 months     | a. Intensive counseling<br>b. Intensive counseling + smartphone<br>c. Less-intensive counseling + smartphone<br>d. Smartphone | SM, CFC, SP                       |
| Kim et al. (2013)     | RCT    | NM  | 45          | Older African American adults, mean age 69.3 | 6 weeks      | a. SMS + pedometer + manual<br>b. Pedometer + manual  | SM                                |
| King et al. (2013)    | RCT    | SCT; Social influence theory; Operant conditioning principles | 68          | GP, mean age 59.1                            | 7 weeks      | a. App + feedback<br>b. App + group communication<br>c. App + positive  | SM, problem solving, goal setting |

|                          |                    |   |     |  |             |   |  |
|--------------------------|--------------------|---|-----|--|-------------|---|--|
|                          |                    |   |     |  |             | reinforcement   |  |
| Napolitano et al. (2013) | RCT                | SCT                                       | 52  | Students, 18–29 years, BMI 25–50       | 8 weeks     | a. Facebook + SMS + personalized feedback<br>b. Facebook<br>c. Wait-list control      | SM, goal setting, CFC, ITP                               |
| Norman et al. (2013)     | RCT                | SCT, control theory, operant conditioning | 65  | GP, 25–55 years, BMI $\geq 25.0$ –39.9 | 4 months    | a. SMS<br>b. Usual care   | SM   |
| Shapiro et al. (2012)    | RCT                | SCT                                       | 128 | GP, 21–65 years, BMI 25–39.9           | 12 months   | a. SMS + MMS<br>b. Monthly e-newsletters  | SM, stimulus control tips, goal setting, problem solving |
| Spring et al. (2013)     | RCT                | NM  | 69  | GP, mean age 57.7                      | 6 months    | a. Mobile<br>b. Standard care   | SM   |
| Steinberg et al. (2013)  | RCT                | Self-regulation theory                    | 91  | GP, 18–60 years, BMI 25–40             | 6 months    | a. SMS + usual care<br>b. Usual care  | SM, goal setting   |
| Thomas et al. (2013)     | Pilot study        | Self-regulation theory                    | 20  | GP, 18–70 years, BMI 25–50             | 12–24 weeks | Mobile app  | SM, feedback   |
| Bond et al. (2014)       | Experimental       | NM  | 30  | GP, 21–70 years, BMI $\geq 25$         | 4 weeks     | App-prompted physical activity breaks + feedback + SWA arm band                       | SM, goal setting, feedback                               |
| Laing et al. (2014)      | RCT                | NM  | 212 | PCP                                    | 6 months    | a. Mobile app<br>b. Usual care  | SM, goal setting, feedback                               |
| Cowder et al. (2015)     | RCT                | Self-determination theory                 | 40  | GP, 18–69                              | 12 weeks    | a. Mobile apps + PA tracker<br>b. PA tracker  | goal setting, monitoring                                 |
| Gilliland et al. (2015)  | Quasi-experimental | Behavioral economic theory                | 208 | GP, 18% BMI $>30$                      | 8–10 weeks  | SMS + up-front surveys + phone interviews + follow-up surveys + Google analytics data | SM, ITP  |
| Svetkey                  | RCT                | SCT and                                   | 365 | GP, 18–35                              | 24          | a. Interactive  | SM, feedback   |

|                            |                             |     |    |  |          |   |                          |
|----------------------------|-----------------------------|-----|----|--|----------|---|--------------------------|
| et al.<br>(2015)           |                             | TTM |    | years, BMI<br>≥25  | months   | cell phone app<br>b. Personal<br>coaching + self-<br>monitoring<br>c. Control |                          |
| Sze et<br>al.<br>(2015)    | Pilot<br>study              | TAM | 20 | Parents (90%<br>female), age<br>44.1 (SD 7.8)<br>years; BMI<br>34.2 (SD,<br>6.8) | 4 weeks  | a. MAMRT +<br>NI + EFT<br>b. MAMRT +<br>NI                                    | SM, feedback,<br>SP, ITP |
| Willey<br>et al.<br>(2016) | Quasi-<br>experi-<br>mental | NM  | 10 | Females, 30–<br>50 years,<br>BMI 26.6–34   | 12 weeks | Mobile app  | SM, feedback,<br>SP, ITP |

*Abbreviations:* BMI, body mass index; CFC, counselor feedback and communication; DD, Descriptive Design; EFT, Episodic Future Thinking; GP, general population; GWL, group weight-loss education; ITP, individual tailored program; MAMRT, Mobile Audio Manager and Response Tracker; ; MMS, Multimedia Messaging Service; NI, nutrition information; NM, not mentioned; PCP, primary care patient; RCT, randomized controlled trial; SCT, social cognitive theory; SGPP, single group pre- and post-intervention; SM, self-monitoring; SP, smartphone; SWA: Sense Wear Armband; TAM, technology acceptance model; TTM, transtheoretical model.

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