

Table 3

Effect of Mobile Health Interventions on Different Study Parameters

Authors (Year)	Study Parameters					
	Body Weight (kg)	BMI (kg/m ²)	Waist Circumference (cm)	Physical Activity Behavior	Dietary Behavior	Effects on Adherence/ Satisfaction
Fukuoka et al. (2010)	NE	NE	NE	Daily total steps increased by 800 or 15% over three weeks, SS	NE	Self-reported willpower improvements associated with step count increases
Archer et al. (2012)	NE	NE	NE	NE	NE	Participants found all three apps easy to use, somewhat helpful with an above average level of satisfaction
Rabin et al. (2011)	IG: 2.7%, CG: 2.7%, NS	IG: 0.91, CG: 0.26, SS	NE	Exercise self-monitoring rates (days/week), SS: IG: 2.6, CG: 1.2 Intentional physical activity (kcal/day), SS: IG: 196.4, CG: 100.9	Decrease in daily calorie intake (kcal/day), NS: IG: 288.8, CG: 242.5 Self-reported diet (days/week): No differences	IG: App use to monitor diet 3.5 times more likely, more downloads per episode. CG: Majority used the website or paper.
Turner et al. (2011)	GWL and SWA: 6.59, SWA: 3.55, GWL: 1.86, CG: none; SS	NE	NE	NE	NE	NE
Burke et al. (2012)	PDA feedback: 2.32%, SS; PDA:	NE	PDA feedback: 6.4%, PDA: 5%, CG: 4%, SS	NE	NE	IG: Greater weight loss in participants who were adherent >60% of the time

	1.38%; CG: 1.94%; group difference s NS					
Allen et al. (2013)	IG: 2.3, CG: 0.63, NS	NE	NE	NE	IG: Positive effects on fruit and vegetable intake and eating behavior inventory scores	Response to messages: All (first week), two of three texts (by week 16)
Kim et al. (2013)	IG: 1.65 (1.8%), CG: 1.03 (0.8%), NS	NE	NE	IG: Steps increased to 3,000 steps/day, SS	NE	Text-messaging adherence moderately strong (60%–69%). Greater weight loss in adherent participants.
King et al. (2013)	IC + SP: 5.4, LIC + SP: 3.3, SS	IC: 0.8, IC + SP: 1.8, LIC + SP: 1.1, SP: 0.7, SS	IC: 3.0 (M), 3.19 (F); IC + SP: 7.01 (M), 5.68 (F); LIC + SP: 6.5 (M), 3.64 (F); SP: 3.38 (M), 0.88 (F), SS	Self-reported physical activity of moderate or greater intensity (hours/week) decreased in all groups (IC: -1.4, IC + SP: -2.0, LIC + SP: -3.6) except for slight increase in SP group (0.19)	Decrease in daily calorie intake (kcal/day), SS: IC: 415.6, IC + SP: 468.2, LIC + SP: 218.5, SP: 249.2 Increase in fruit and vegetable servings/day, NS: IC: 0.81, IC + SP: 0.51, LIC + SP: 2.1, SP: -0.05	Adherence highest in IC + SP group: Counseling attendance: 72% App diet logging: 53% App physical activity logging: 32% Similar percentages for LIC + SP group
Napolitano et al. (2013)	NE	NE	NE	Increase in daily steps: IG: 679; CG: 398 Changes in MET: IG: 11.96; CG: 4.55	NE	NE

Norman et al. (2013)	NE	NE	NE	Increases in brisk walking for all groups (IG 1: 71.1, IG 2: 122.9, IG 3: 105.7) and MVPA for all groups (IG 1: 179.2, IG 2: 257.1, IG 3: 134.3), SS	NE	Participants continued to use the applications for 211.0 days (IG 1), 199.3 days (IG 2), and 162.0 days (IG 3) after the study period
Shapiro et al. (2012)	Facebook Plus: 2.4, Facebook: 0.63 CG: 0.24, SS	NE	NE	Differences within or among the groups: NS	Differences within or among the groups: NS	97% found the program helpful and 100% would recommend the program
Spring et al. (2013)	IG: 2.9, CG: 0.02 (gain), SS	NE	NE	NE	NE	Adherent participants in the IG lost more weight than adherent or nonadherent participants in the control group
Steinberg et al. (2013)	IG: 7.7 (6.55%), CG: 1.5 (0.35%), SS	IG: 0.47, CG: 0.42, NS	NE	NE	IG participants self-weighed more days/week and consumed fewer calories/day than CG participants Daily caloric intake (kcal/day), SS: IG:1,509, CG:1,856	IG: daily self-weighing was perceived positively
Thomas et al. (2013)	IG: 10.9 kg, no CG, SS	NE	NE	NE	NE	Adherence to self-monitoring: 85% All extended program participants gave the maximum rating for satisfaction and would recommend the program

Bond et al. (2014)	NE	NE	NE	SED decrease, SS, 3-min: 5.9%, 6-min: 5.6%, 12-min: 3.3% LPA increase, SS, 3-min: 3.9%, 6-min: 3.9%, 12-min: 1.9% MVPA increase, SS, 3-min: 2.0%, 6-min: 1.7%, 12-min: 1.3%	NE	App use increased motivation to take PA breaks and reduced SED
Laing et al. (2014)	IG: 0.30, CG: 0.27, NS	NE	NE	Self-reported exercise behaviors: difference NS	IG used “personal calorie goal” more often than CG did (group difference: 2.0 days/week)	Frequency of logins (mean total logins: 61) decreased rapidly after enrolment. No association between baseline characteristics and extent of app use or weight change.
Cowdery et al. (2015)	NE	IG: 0.0921, CG: 0.1879 (gain), NS	NE	Decrease in total MET (min/wk), NS: IG: 356.8 CG: 722	NE	NE
Gilliland et al. (2015)	NE	NE	NE	NE	80% benefited Greater participation associated with increased healthy eating. No influence on consumption behavior.	NE

Svetkey et al. (2015)	CP: 0.99, PC: 2.45, CG:1.44, NS	NE	NE	NE	NE	Self-weighing frequency(times/wk): CP: 4.0 (0–6 months), 2.1 (13–24 months) PC: 2.2 (0–6 months), 1.0 (13–24 months) All monthly calls completed: >90% (0–6 months), >87% (13–24 months)
Sze et al. (2015)	% overweight: IG: 4.6, CG: 1.1, SS	IG: 1.0, CG: 0.2, SS	NE	NE	Decrease in calorie intake (kcal/day), SS: IG: 791.2, CG: 482.4	IG: 87%, CG: 92.9%
Willey et al. (2016)	IG: 6.13 (7.3%), no CG, SS	NE	IG: 7.2 (6.6%), no CG, SS	NE	NE	More app use associated with greater improvement in each health outcome but results were NS

Abbreviations: BW, body weight; BMI, body mass index; CG, control group; CP, cell phone; F, female; GWL, group weight-loss education group; IC, intensive counseling; IG, intervention group; LIC, less-intense counseling; LPA, low-intensity physical activity; M, male; MVPA: moderate to vigorous intensity physical activity; NE: not evaluated; NS, nonsignificant; PA, physical activity; PC, personal coaching; SED: excessive sedentary time; SP, smartphone; SS, statistically significant; SWA: Sense Wear Armband.

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