

Abstract

Effectiveness of m-Health Application for Improving Healthy Lifestyles in Healthy College Students: A randomized controlled trial

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introduction: Mobile health applications can deliver highly-tailored behavioral interventions to fit individuals' daily routines. Yet, no randomized controlled trials (RCTs) focused on college student populations exist for m-Health interventions on physical activity (PA) behaviors and sugar-sweetened beverages (SSBs) consumption.

objectives: Using RCT design, determine the efficacy of a 12-week m-Health intervention aimed to increase PA (step-counts), improve BMI, and reduce SSB consumption among college students.

methods: College students (n=130) were randomized to intervention (n=55) and control (n=58) conditions. Both groups utilized a smartphone app to record daily step-counts at 2-week baseline, during 12-weeks intervention, and post-intervention. Both groups received PA and SSB education via smartphone. Intervention-group also received via smartphone their goals for 1) PA (10,000 steps/day) and 2) SSB reduction (≤ 240 mL SSBs/d (≤ 8 fl oz SSB/d)), and smartphone-based progress tracking/feedback. Main DVs were step-counts and SSB changes; BMI, fat-mass and percent body-fat were secondary outcomes.

results: Post-intervention PA (step-counts) were higher for Intervention (Mean=54896.27, SD=14992.35) vs Control (Mean=45530.12, SD=15703.41; $t(112) = -3.255$, $p < 0.05$). Intervention group's step-counts increased (Pre-Mean=40320.38, SD=16515.63; Post-Mean=54896.27, SD=14992.35) ($t(55) = -6.11$, $p < 0.05$). Overall, there were no significant intervention effects for BMI, fat mass and percent body-fat. However, body-weight changes were significant (Pre-Mean=64.94, SD=11.64; Post-Mean=64.52, SD=11.59; $t(55) = 2.56$, $p < 0.05$). SSBs consumption was not significant for either group.

conclusions: Our results demonstrate *m-Health* apps can increase PA among college students, with goal-setting, self-monitoring strategies and feedback as key intervention components. Future studies should personalize PA and SSB consumption goals and feedback using baseline activity levels.

Administer health education strategies, interventions and programs Implementation of health education strategies, interventions and programs

