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Feasibility and acceptability of delivering a post-partum weight loss intervention via Facebook: a pilot study

Molly E. Waring, PhD[1,2,3], **Tiffany A. Moore Simas, MD, MPH, MEd**[3,4,5], **Jessica Oleski, MA**[1,6], **Rui S. Xiao, MD, PhD**[2], **Julie A. Mulcahy, MPT**, **Christine N. May, PhD**[2,6], and **Sherry L. Pagoto, PhD**[1,6]

[1]Department of Allied Health Sciences, University of Connecticut, Storrs, CT

[2]Department of Quantitative Health Sciences, University of Massachusetts Medical School, Worcester, MA

[3]Department of Obstetrics & Gynecology, University of Massachusetts Medical School, Worcester, MA

[4]Department of Pediatrics, University of Massachusetts Medical School, Worcester, MA

[5]Department of Psychiatry, University of Massachusetts Medical School, Worcester, MA

[6]Division of Preventive and Behavioral Medicine, Department of Medicine, University of Massachusetts Medical School, Worcester, MA

Abstract

Objective—To evaluate the feasibility and acceptability of a Facebook-delivered post-partum weight loss intervention.

Methods—Overweight/obese post-partum women received a 12-week weight loss intervention via Facebook. Feasibility outcomes were recruitment, retention, engagement, and acceptability. Weight loss was an exploratory outcome.

Results—Participants (n=19) were 3.5 (SD: 2.2) months post-partum with baseline BMI 30.1 (SD: 4.2) kg/m^2. Retention was 95%. Forty-two percent of participants visibly engaged on the last day of the intervention, and 100% in the last 4 weeks. Eighty-eight percent were likely/very likely to participate again and 82% likely/very likely to recommend the program to a post-partum friend. Average 12-week weight loss was 4.8% (SD: 4.2%); 58% lost ≥5%.

Conclusions and Implications—Findings suggest that this Facebook-delivered intervention is feasible and acceptable and supports research to test efficacy for weight loss. Research is needed on how best to engage participants in social network-delivered weight loss interventions.

Address for corresponding author: Molly E. Waring, PhD, Department of Allied Health Sciences, College of Agriculture, Health, and Natural Resources, University of Connecticut, Koons Hall, 358 Mansfield Road, Unit 1101, Storrs, CT 06269-1101, Phone (860) 486-1446, molly.waring@uconn.edu.

Keywords

postpartum; weight loss; social media; pilot study

Introduction

While post-partum weight retention averages 0.5–3 kg, as many as half of women retain ≥5 kg at 1 year, and post-partum weight retention contributes to obesity for many women.[1–3] In a recent study, 30% of women who were normal weight pre-pregnancy were overweight at 1 year post-partum, 44% of overweight women had transitioned to obesity, and 97% of obese women remained obese.[2] A recent meta-analysis found lifestyle interventions (diet or exercise or both) to be modestly efficacious for post-partum weight loss in randomized controlled trials, yet almost all required in-person participation,[4] which is logistically challenging for many women.[5–7]

Facebook may be an efficient platform for delivering weight loss programming to post-partum women. Facebook is currently the most popular online social network,[8] and is used by 81% of online moms.[9] Three-quarters percent of Facebook users engage on the platform daily, including 55% who engage multiple times per day,[8] for upwards of 50 minutes a day.[10] Many women already seek support about health and parenting from their Facebook network. A recent Pew Internet Research survey found that 66% of mothers obtained helpful parenting information from their Facebook network in the past 30 days, and 50% received social/emotional support about a parenting issue.[9] Delivering a post-partum weight loss intervention via Facebook allows us to connect with post-partum women where they are, more fully integrating into their lives and daily routines.[11] The aim of this study was to assess the feasibility and acceptability of a post-partum weight loss intervention delivered via a private Facebook group.

Methods

Post-partum women were recruited from the inpatient maternity units at UMass Memorial Health Care (UMMHC) in Worcester, MA and the surrounding community in summer 2014. Research staff approached women on the maternity unit between 24–48 hours post-partum, briefly described the study, and obtained permission to contact them in 6–8 weeks. Research staff also posted flyers in the UMMHC outpatient obstetric clinics, on the University of Massachusetts Medical School intranet, and on the Worcester-area Craigslist. Additionally, staff contacted participants from a previous research study of pregnant women who had consented to contact for future research. Research staff screened interested women for eligibility over the phone. Eligible women were ≥18 years old, between 6 weeks and 12 months post-partum, overweight or obese (25 kg/m^2 ≤ body mass index (BMI) < 45 kg/m^2) based on height and weight self-reported at screening, comfortable participating in English, owned a scale, owned a smartphone, had a Facebook account to which they logged in at least weekly, and had permission to participate from their primary care provider or obstetrician/gynecologist. Exclusion criteria were pregnancy or plans to conceive during the study period, previous or planned bariatric surgery, medical conditions that prevented increasing

physical activity or making dietary changes, medications affecting weight, inability to walk ¼ mile without stopping, Type 1 or 2 diabetes, or plans to move during the study period. The University of Massachusetts Medical School Institutional Review Board approved this study.

At a 60-minute baseline visit, participants provided informed consent, staff measured participants' height and weight, and participants reported their demographics and reproductive and weight history via a secure web form.[12] Following the intervention, participants completed an in-person visit, at which staff measured participants' weight and participants provided feedback on the intervention. Participants received a $50 gift card after completing follow-up.

Participants received a 12-week lifestyle intervention via a secret Facebook group (i.e., a private group in which membership is by invitation only, posts are only viewable by group members, and the group does not appear in searches). The intervention was based on the Diabetes Prevention Program (DPP),[13] adapted for the post-partum period and delivery via Facebook. The DPP has established efficacy for weight loss,[14] and has been translated to multiple settings and populations[15] including primary care via the Internet[16] and the post-partum period.[17,18] DPP curriculum includes behavioral strategies such as self-monitoring, stimulus control, problem solving, social support, environmental restructuring, stress management, and relapse prevention.[13] Investigators converted the didactic content of the DPP into Facebook posts or links to online articles which were included in intervention posts.[19] Adaptations for the post-partum period[17,18] included specific nutritional needs for breastfeeding women, kid-friendly recipes, links to exercise videos to do with children and/or at home, negotiating responsibilities to care for self, and challenges to lifestyle change common among post-partum women.[5,7,20,21] Two coaches (a licensed clinical psychologist and a health promotion researcher) posted a topic of the day, provided support, and encouraged participants to engage in discussion. An obstetrician and a physical therapist with experience with perinatal women were also available to answer questions, particularly those related to their clinical expertise. Participants were provided individualized calorie goals to facilitate a weekly weight loss of 1–2 lbs. For breastfeeding participants, calorie goals accounted for lactation.[22] Participants were encouraged to increase physical activity gradually up to a goal of 150 minutes of moderate-intensity physical activity per week. Participants were encouraged to track diet and physical activity using MyFitnessPal®, a free mobile app available for iPhone and Android phones.

Feasibility outcomes were recruitment, retention, engagement, and intervention acceptability. Research staff tracked recruitment efforts and documented reasons for ineligibility. The retention rate was calculated as the rate of completion of the follow-up assessment. Objective engagement data were downloaded from Facebook using NCapture add-on to NVivo 10 software, and the number of posts and replies written by each participant, and the number of posts or replies liked by each participant were summed. Some participant posts were in response to an intervention post (e.g., a post asking participants to post a photo); these posts were considered replies, similar to previous research.[23] Engagement variables were not normally distributed, and thus were described by median, inter-quartile range (IQR), and range. Sustained engagement was calculated as the date of the latest post or reply, or date of post or comment liked.[24] At follow-up, participants rated

on 5-point Likert scales how likely they would be to recommend the program to a post-partum friend and whether they would participate again following a subsequent pregnancy.[18]

Participants self-reported pre-pregnancy weight and gestational weight gain from the pregnancy they most recently delivered. Post-partum weight retention (lbs) was calculated by subtracting self-reported pre-pregnancy weight from measured baseline weight, and significant post-partum weight retention was defined to be ≥5kg.[25] Absolute (lbs) and percent weight loss was calculated from weight measured at baseline and follow-up. Weight loss was calculated using weight measured during week 10 for 1 woman who moved out of state, and using weight self-reported at the end of week 12 for the 1 woman who did not complete her follow-up assessment. Clinically significant weight loss was defined as ≥5%.[26] Analyses were conducted in SAS 9.4 (SAS Institute, Inc., Cary, NC).

Results

Recruitment and retention are shown in Figure. Forty-three percent (n=30/70) of women screened were eligible. The most common reason for ineligibility was normal weight (n=14; 35% of ineligible individuals). One woman did not complete follow-up; the retention rate was 95%.

Participants (n=19) were 31.5 (SD: 3.2) years old and 3.5 (SD: 2.2) months post-partum (Table). Average BMI was 30.1 (SD: 4.2) kg/m^2 at baseline; 42% were obese, and 63% had retained ≥5kg from pre-pregnancy. Seventy-four percent were breastfeeding, and 63% had 2 or more children. Eighty-four percent were married, and 16% were living with a partner.

Over 12 weeks, participants posted a median of 2 original posts (IQR: 1–3, range: 0–5) and 24 replies (IQR: 15–31, range: 6–76), and liked a median of 32 posts or comments (IQR: 16–51, range: 10–172). Engagement was sustained through the end of the intervention – 42% of participants posted, commented, or “liked” a post or comment on the last day of the intervention, 63% during the last week, and 100% in the last 4 weeks.

Participants found the intervention to be acceptable. The majority (88%) of women said they would be likely/very likely to participate again if they had another baby (41% very likely, 47% likely, 6% neutral, 6% unlikely, and none very unlikely), and 82% would be likely/very likely to recommend the program to a post-partum friend (29% very likely, 53% likely, 12% neutral, 6% unlikely, and none very unlikely).

Eighteen women lost weight; 1 woman gained weight. On average, women lost 7.7 lbs (SD: 8.1 lbs, range: 16.9 lbs gained to 20.8 lbs lost), representing 4.8% of their baseline weight (SD: 4.2%, range: 6.7% gained to 11.8% lost). Fifty-eight percent of participants lost ≥5%.

Discussion

The current study extends research on the use of Facebook to deliver behavioral interventions. Weight loss interventions that deliver at least 1 intervention component via Facebook appear promising.[11,27–31] In the only study to date that focused on post-partum women, a Facebook group provided a forum for support and links to additional resources as

part of a multicomponent post-partum weight loss intervention that also included daily text messages and counseling calls with an interventionist.[11] In this study, women in the intervention condition lost 2.8% of their baseline weight, and a third (n=3/9) achieved 5% or greater weight loss.[11] In the current study, women lost an average of 4.8%, with 58% losing 5% or greater of their baseline weight. Findings from the current study suggest that delivering weight loss programming to post-partum women entirely via a private Facebook group is feasible and acceptable, and that intervention visits may not be necessary to help post-partum women achieve clinically meaningful weight loss. A recent trial found that low-income post-partum women receiving assistance through the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) who participated in a weight loss intervention delivered via an interactive website, text messages, and monthly in-person meetings achieved greater weight loss at 12 months than women receiving WIC assistance alone.[32] In that study, women saw significantly greater weight loss than the comparison condition yet attended on average only 4.4 out of 12 monthly in-person sessions,[32] further supporting the feasibility of post-partum weight loss programming delivered remotely. Given implications for cost-effectiveness, this question should be explored in future research.

Delivering lifestyle interventions entirely online can overcome barriers many post-partum women face to participating in in-person programs (e.g., childcare, busy schedules).[5–7] Facebook provides opportunity to embed the intervention into women's daily lives,[33] a strength of this delivery mode as behavior analytic theory has long shown that delayed consequences and feedback have diminished impact on behavior.[34] The average of 50 minutes per day users spend on Facebook[10] provides ample opportunity to cue women to engage in healthy behaviors offline. Facebook can connect post-partum women with other post-partum women seeking to lose weight, even across wide geography, important because moms, especially first-time moms, often seek out other moms for advice and support,[9,35] and these social connections can provide support and modeling for healthy behaviors related to weight loss.[36]

Remote delivery via online social networks such as Facebook may also facilitate sustained engagement and retention in weight loss programs. Indeed, 1 participant moved out of state yet was able to continue participating in the intervention. The ability to deliver a lifestyle intervention and conduct assessments remotely allows interventions to reach far more post-partum women. While traditional recruitment methods were used for this pilot study, recruitment of post-partum women directly from Facebook into a Facebook-delivered lifestyle intervention could ensure participants are regular users.[37] If further testing demonstrates efficacy for weight loss, this Facebook-delivered post-partum weight loss intervention could be provided remotely to women across a wide geographic area and thus this treatment model has high potential reach and impact.

In this study, women remained engaged throughout the 12 weeks of the intervention, with almost half of the sample visibly engaging on the last day of the intervention and 100% during the last 4 weeks. However, the extent of visible engagement (i.e., posts, replies, likes) was quite variable, with some women engaging minimally. How to optimally engage participants in behavioral interventions delivered via online social networks is an active area

of research.[23,27] Future research examining which topics or intervention posts received high or low engagement may inform the development of social media delivered behavioral interventions.

This study has limitations. The results from this single-arm pilot study do not provide insight into how much weight women would have lost in absence of intervention. However, in the current study women lost −3.5 kg on average, similar to recent trials of web-based post-partum weight loss interventions (e.g., average losses of −3.3 kg at 14 weeks,[11] −3.1 kg at 6 months[32]), and women in the comparison conditions in these trials did not achieve meaningful weight loss (i.e., +0.5 kg,[11] −1.0 kg[32]), supporting research to test the efficacy of this intervention. As the majority of the sample was highly educated, partnered, and non-Hispanic white, our findings may not be generalizable to less educated women, single mothers, or women of racial/ethnic minorities, and future research should include more diverse samples.

Implications for Research and Practice

Delivering evidence-based weight loss strategies via a private Facebook group has the potential for public health impact. This pilot study suggests that this approach is feasible and acceptable to post-partum women, and supports further research to assess intervention efficacy.

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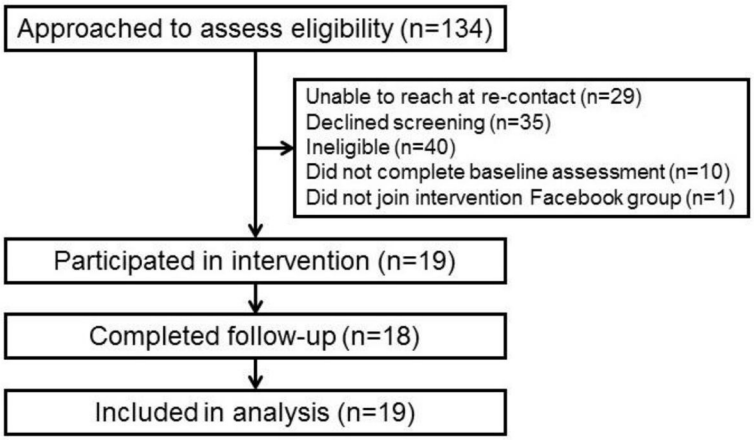

Figure.
Participant Flow Diagram

Table

Characteristics of the Sample of Post-Partum Women (n=19), n (%) or M ± SD

Age (years)	31.5 ± 3.2
Months post-partum	3.4 ± 2.1
Currently breastfeeding	14 (74)
Body mass index (BMI; kg/m^2) at baseline	30.1 ± 4.2
Gestational weight gain in index pregnancy (lbs)	35.7 ± 14.1
Post-partum weight retention (lbs) at baseline	14.2 ± 18.0
Race/ethnicity	
Non-Hispanic white	14 (74)
Non-Hispanic black	1 (5)
Hispanic/Latina	2 (11)
Asian	2 (11)
Education	
Less than Bachelor's	2 (11)
Bachelor's degree/some graduate school	6 (32)
Graduate degree	11 (58)
Married	16 (84)
Work status	
Employed full-time	10 (53)
Employed part-time	2 (11)
Homemaker	6 (32)
Student	1 (5)