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ORIGINAL RESEARCH

Varying social media post types differentially impacts engagement in a behavioral weight loss intervention

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Abstract

The purpose of this study was to examine whether different types of posts differentially affect participant engagement and if engagement with social media enhances weight loss. Data are a subanalysis from a randomized weight loss study with a 4-month follow-up support period via private Facebook groups and monthly meetings. Counselors posted five different post types/week based on social cognitive theory (weight-related, recipes, nutrition information, poll votes, or requests for suggestions). Types of participant engagement (likes, comments/poll votes, and views) were assessed. Poll votes were the most engaging (mean number of votes or comments/poll 14.6±3.4, $P<0.01$) followed by suggestions (9.1±2.7 posts, $P<0.01$) and weight-related posts (7.4±3.1 posts, $P<0.01$). Engagement with Facebook was significantly associated with weight loss during the 4-month maintenance period ($B=-0.09$, $P=0.04$). The findings provide evidence for ways to provide social support during weight loss interventions using remote methodology.

Keywords

Social support, Weight loss, mHealth, Social media, eHealth

Implications

Practice: Prompts soliciting feedback, such as polling features and suggestions, prompt the most engagement among participants and should be used in the context of social media based interventions for weight loss.

Policy: Future public health initiatives may want to consider offering group support via social media when face-face support from clinical staff decreases.

Research: Future studies should examine if social support provided via social media groups differs from support delivered in traditional clinical settings.

INTRODUCTION

Approximately 69 % of the adult population in the US is overweight or obese [1]. Being overweight or obese is associated with a number of chronic diseases such as type 2 diabetes, cardiovascular disease, and hypertension [2, 3]. There is also an association with increased risk of several cancers [4] including postmenopausal breast [5] and prostate [6] among those who are overweight or obese. Research has shown that even a small weight loss of 5 % of total body mass can reduce chronic disease burden for overweight and obese individuals [7].

There are many weight loss programs that have been developed and delivered via internet and other web-based platforms [8, 9] as well as through social media [10] to promote weight loss and reduce risk of chronic disease. Participant engagement with social media in the context of a weight loss intervention has been shown to be related to weight loss (e.g., Facebook and Twitter) [10]; yet keeping people engaged in weight loss programs delivered via social media has been a challenge [11]. Often, internet- and social media-based weight loss programs have consisted of study counselors posting to online groups as a way to engage participants; however, few studies have examined what types of posts are most successful for engaging participants when using internet- and social media-based interventions for weight loss. Previous studies have examined the efficacy of evidence-based theories for developing posts using Motivational Interviewing [12] and social cognitive theory [8] for internet- and social media-based interventions. In addition, qualitative studies have examined what types of posts participants preferred receiving in the context of a weight loss intervention (such as motivating, planning, overcoming barriers, and prompting for self monitoring) [13]. However, previous studies have not examined what types of posts most engage participants in social media-based interventions, and if this engagement, in turn, promotes weight loss.

Social cognitive theory describes the reciprocal interactions between human cognitions, environmental influences, and human behavior [14–16]. Social cognitive theory also posits that individual behavior is learned by modeling behavior of others [14, 16].

Self-efficacy, the belief in one's ability to perform certain behaviors and overcome challenges and perceived self-control, the belief in one's ability to control their behavior, are central constructs of social cognitive theory and are of importance for interventions seeking positive health behavior change outcomes [16]. The purpose of the present study was to examine whether different types of posts, developed using social cognitive theory [14] and posted to Facebook groups during the maintenance phase of a weight loss intervention, differentially affected participant engagement. The goal of the present study was to address the following research questions:

1. Which post types prompt the most engagement (e.g., responses) from weight loss study participants during a weight loss intervention utilizing Facebook for information delivery and social support and which posts do participants report they prefer?
2. Is there a difference in engagement among participants between counselor-initiated posts and participant-initiated posts?
3. Does engagement in social networking support groups during the maintenance phase of a weight loss study enhance weight loss?

We hypothesized that posts prompting interaction, through questions posed or polling features, would generate more engagement from participants than other post types and that active participation in the Facebook groups would be associated with greater weight loss over the course of the 4-month maintenance period. Because research has found that individuals viewed as authorities on health-related topics may be more trusted than peers on websites and discussion boards [17, 18], we hypothesized that counselor posts would prompt more engagement from participants than participant-initiated posts.

METHODS

Study population and measures

Methods for the New Dietary Interventions to Enhance the Treatments for Weight Loss (New DIETs) study are described elsewhere [19]. Briefly, participants for New DIETs were recruited for a 2-month randomized weight loss study with a 4-month follow-up support period to test the effects of following five different plant-based diets for weight loss. Participants were recruited via university and worksite listservs and newspaper advertisements. Exclusion criteria included having an unstable medical status, uncontrolled thyroid condition, BMI outside the range of 25.0–49.9 kg/m^2, being a smoker, being unable to attend required meetings and assessments, being unable to access a computer or internet for completing assessments, having a psychiatric illness, receiving treatment for drug or alcohol dependency, having an eating disorder, participating in another weight loss program, being pregnant or planning on becoming pregnant during the study, or breastfeeding. Participants received $20 for completion of assessments at 2 months. Prior to enrollment, participants were informed of the five diets that would be used to aid in weight loss and that they would not be able to select a specific diet. The diets used in New DIETs are described elsewhere [19]. Briefly, participants were randomized to one of five dietary approaches: a vegan diet (excludes all animal products), vegetarian diet (excludes all meat and seafood), pesco-vegetarian diet (excludes meat except seafood), semi-vegetarian diet (limits meat), or omnivorous diet (no foods excluded). All diets focused on low-glycemic index [20, 21] and low-fat foods. Participants were required to have internet and computer access to participate in the study (to complete questionnaires). The New DIETs study was conducted in 2013 in Columbia, SC with baseline data collected in February 2013. All participants provided written consent and the study was approved by the university IRB.

Participants in New DIETs attended weekly group meetings for the first 8 weeks of the study, with the exception of the omnivorous group. This group, which acted as the control group, attended monthly meetings and received weight loss information via weekly e-mail lessons. After the initial 8 weeks of the study, all five diet groups were provided with monthly, face-to-face group meetings. In order to provide social support between monthly meetings during the maintenance phase of the study, participants were provided with a private Facebook group for their assigned diet. Joining these groups was optional. Study counselors posted five different types of posts to each Facebook group each weekday for the duration of the maintenance phase of the study. Table 1 provides an overview of the five post types used in all of the Facebook groups and the social cognitive theory constructs which were targeted. Each Monday, a post related to weight loss was posted. A consistent day of the week was used for weight-related posts in order to provide an anticipated day each week in which participants would be asked about their weight status. The other four types of posts were not assigned to a particular day and were randomly selected using a computerized random number generator, in order to eliminate an effect of day of the week. Post types were selected to mirror the content of the face-to-face sessions, which included having a weight assessment and a time for participants to share how they were doing on the diet and provide suggestions to other participants. In addition, study counselors presented information on the diets and did a cooking demo each meeting.

Outcome measures

Number of Facebook interactions (views to a post, likes, responses to posts from counselors, participant-initiated posts, and responses to participant-initiated posts) for each participant were tallied over the course of the 4-month maintenance period for all five private Facebook groups. Likes on a post are tallied by Facebook and are the number of times a participant has

Table 1 | Post types with examples

Post types	Post definition with examples	Targeted social cognitive theory construct
Weight loss (Mondays)	Posts asking participations to discuss their weight loss progress. Example: "How has your weight loss been since last week? Up, down, or about the same?"	Self-control
Recipe	Posts sharing a recipe for their assigned diet with a link to the recipe. Example: "This makes for a great snack, sandwich spread, or pasta topping: (Link to recipe)."	Behavioral capability and observational learning (when links to videos of cooking demos were provided)
Nutrition study, science, or news	Posts sharing a nutrition fact or nutrition news item, such as results from a nutrition study or link to information on foods that contain vitamin B_{12}. Example: "Here is a great list of plant-based sources of calcium. Ever added kale to a smoothie? (link to website)"	Situation
Poll	A poll that allowed participants to select an item from a list (vs. having to type in an answer). Example: "What's the most challenging meal for you to prepare each day? Breakfast, Lunch, Dinner, or Snacks."	Targeted various constructs but was included to mirror the questions counselors would ask of participants during face-to-face meetings
Suggestion	A post asking participants to share a tip to help other participants. Example: "Share with the group and help others. How have you dealt with a weight plateau (or gain) recently?"	Expectations Emotional coping response

endorsed a specific post on a Facebook page by giving this post a "thumbs-up" [22]. Polls provided participants with a selection of choices to cast a vote and participants could click on a selection in order to register their poll vote. Weight-related posts and suggestions requested responses from the group, whereas recipes and news posts did not specifically solicit responses from participants. Facebook posts reinforced the content from the group sessions but did not specifically ask participants to be more active or participate in certain ways in the face-to-face meetings or Facebook groups. Table 2 describes the different types of Facebook interactions measured.

Participants also completed questionnaires assessing demographic characteristics. All questionnaires were completed online. In addition, measures of height (SECA 213, using a calibrated stadiometer) and weight (SECA 869, Hamburg, Germany, calibrated digital scale accurate to 0.01 kg) were measured at baseline, 2, and 6 months and Facebook post preference was assessed in the survey administered at 6 months by asking participants which Facebook post by study counselors they preferred the most (of the five examined post types). All baseline measurements were obtained prior to participants receiving randomization to their assigned diet.

Engagement with social media

Engagement with social media was examined in two ways: (1) engagement by post type: frequency of each type of participant interaction (views, likes, comments, poll votes, and participant-initiated posts) among the five post types and as (2) engagement by participant: overall engagement totaling the number of likes, comments (including poll votes), participant-initiated posts, and responses to participant-initiated posts by each participant over the course of the 4-month maintenance period. Both responses to counselor-initiated posts and participant-initiated posts were also assessed. In addition, participant-initiated posts were categorized by the day on which they appeared (e.g., a participant posted a separate post on the same day a counselor posted a weight-related post would be categorized as a participant-initiated post on a weight post day). This was done to see if certain post types stimulated more conversation online in the form of participant-generated posts. Participants were categorized as high engagers with Facebook or low engagers by dichotomizing based on the median split of the total number of likes, comments, and poll votes over the 4-month follow-up period. Participants were categorized as being high engagers if their total number of likes, comments, and poll votes was greater than or equal to the median number of likes, comments, and poll votes throughout the maintenance phase of the study. Median was 5 posts, likes, or comments (interquartile range of 0 to 25).

Statistical analyses

Aims of the statistical analysis for this paper include (1) determining how the five post types differed according to level of participant engagement (i.e., number of likes

Table 2 | Description of various measures of Facebook engagement

Type of measured Facebook interaction	Description of Facebook interaction
Views	This measure assesses the number of views a post to Facebook received. Facebook shows the number of views for each post and who has viewed each post. This corresponds to whether or not the post was visible on an individual's Facebook page when they logged on.
Likes	Participants could click on a "Like" icon in response to counselor or participant posts (indicating approval or agreement with the statement). Likes counted each day included both likes for the original post and likes for the comments on the post. If a participant liked someone else's comment on their original post, this was counted as a like on the original post.
Comments (including poll votes)	Comments (responses to a counselor-initiated post) and poll votes (votes cast to a poll posted by a study counselor) were combined into one type of engagement, given that both were made by participants in response to a post or poll from counselors.
Participant-initiated posts	Participant posts were posted by a participant not in response to a counselor post or a comment on a counselor post. These were posts by a participant posted to the group's Facebook page.
Responses to participant-initiated posts	This was measured as the number of views, likes, and comments that other participants made in response to a participant-initiated post.

and comments in response to counselor posts), (2) whether there were any differences in engagement between counselor- and participant-initiated posts, and (3) whether engagement predicted weight loss during the 4-month maintenance period and if weight loss differed during that time among the participants that did not join the Facebook groups, those that joined but were low engagers, and those that joined and were high engagers.

For the statistical analysis, descriptive statistics were computed for participant views, likes, and comments from counselor posts as well as participant-initiated posts. For differences in baseline demographic characteristics among the three Facebook engagement levels, analysis of variance (ANOVA) was used with Tukey's HSD for post hoc analyses of continuous variables and chi-square test of independence was used for categorical variables. ANOVA was used to examine differences in engagement by post type with Tukey's HSD used for post hoc analyses. Independent samples *t* tests were conducted to determine if there were differences among views, likes, and comments between counselor-initiated posts and participant-initiated posts. Linear regression was used to examine if engagement with Facebook was associated with weight loss during the maintenance phase of the study. Missing weight data was handled by carrying baseline values forward. All statistical analyses were conducted using SPSS 20.0 for Windows software with a P value of 0.05 used to indicate statistical significance (SPSS for Windows, 20.0.0 2013. Chicago: SPSS Inc).

RESULTS

Out of the total number of participants in the study (n=63), 33 (51 %) did not join the optional Facebook support groups. At the 6-month time point, 50 (79 %) completed the study (i.e., provided a bodyweight measurement at 6 months) and 46 completed the questionnaires (73 %). Baseline characteristics of study participants by three groups (did not join Facebook, joined Facebook and were high engagers, joined Facebook and were low engagers) can be found in Table 3. No difference was found in the number of participants who completed the 6-month study (χ^2= 5.1, P=0.08) among those who did not join the Facebook groups (n=9. 27 %), those who joined and were high engagers (n=0), and those who joined but were low engagers (n=4, 27 %). No significant differences in age, BMI, gender, ethnicity, education, or marital status were found among the three groups; however, there was a significant difference in the number of maintenance meetings participants attended with those participants who joined Facebook and were high engagers (3.7±0.8) attending significantly more meetings than those who joined but were low engagers (1.7±1.4) and those who did not join Facebook (1.8±1.4, P<0.001).

Which post type promotes participant engagement?

Table 4 shows the mean number of comments and poll votes, likes and views by each of the five examined post types. A significant difference was found among the five post types for poll votes and comments (F= 60.3, P<0.001) and likes (F=20.6, P<0.001), but not for views. Poll votes were the most engaging (mean number of votes or comments per poll of 14.6±3.4) with a significantly greater number poll votes and comments by participants in response to a study counselor posting a poll as compared to the other four post types. Second most engaging were posts requesting participants to suggest a tip for other users (9.1±2.7 mean posts) and weight-related posts (7.4±3.1 mean posts), both of which were greater than posts of nutrition news and information or recipes. More participants liked posts related to suggesting a tip than weight, recipe, or nutrition news/information posts

Table 3 | Baseline demographics of study participants

	Joined, low engagers	Joined, high engagers	Did not join	Total[a]	*P* value for difference between groups
n	15	15	33	63	
Age (mean years±SD)	46.53±10.4	51.13±4.0	48.15±8.6	48.5±8.3	*P*=0.30
Gender					*P*=0.71
Female	12	10	24	46 (73 %)	
Male	3	5	9	17 (27 %)	
Ethnicity					*P*=0.79
Black	3	4	5	12 (19 %)	
White	12	11	27	50 (79 %)	
Other	0	0	1	1 (2 %)	
Education					*P*=0.14
Less than college	0	0	4	4 (6 %)	
College or higher	15	15	29	59 (94 %)	
Marital status					*P*=0.31
Married	8	4	12	24 (38 %)	
Other	7	11	21	39 (62 %)	
Mean BMI (kg/m^2±SD)	35.8±5.2	34.8±5.4	35.1±5.5	35.2±5.3	*P*=0.86
Total number of meetings attended during 4-month maintenance period (out of four meetings total)	1.7±1.4	3.7±0.8[b]	1.8±1.4	2.3±1.5	*P*<0.001

[a] Data are n (%) unless otherwise indicated

[b] Significantly different from joined high engagers, joined low engagers, and did not join

(mean 6.2±1.1 likes). Significantly, more likes were found for polls (5.1±1.1 mean likes per poll) compared to weight-related posts (2.6±1.3) or recipe-related posts (3.5±1.2), and more likes were found for nutrition news/information items (4.3±1.7) than weight-related posts.

Table 5 shows the number of likes, comments, poll votes, and views between the high engagers and low engagers. Findings show that those who were high engagers had significantly more views (58.0±24.2) and more posts, comments, poll votes, and likes (41.5±37.9) than low engagers views (16.2±18.8, *P*<0.001) or posts, comments, poll votes, and likes (1.0±1.3). This indicates that the majority of low engagers were not participating in the Facebook groups in any way, including reading the posts, which would categorize them as lurkers.

A subanalysis was conducted to examine engagement just among counselor posts that prompted users to respond (polls, weight-related messages, and suggestions) and between counselor posts that did not specifically request for participant response (recipes and nutrition news). Examining just those counselor posts that requested responses from participants, poll posts

Table 4 | Type of weekly post to Facebook over the course of the 4-month maintenance intervention and mean number of poll votes and comments, likes, and views by post type

Type of post	Number of poll votes or comments in response to post (mean±SD)	Number of likes in response to post (mean±SD)	Number of views in response to post (mean±SD)
Weight-related post	7.4±3.1[b,c]	2.6±1.3	14.4±3.3
Recipe-related post	2.8±1.2	3.5±1.2	15.5±3.7
Nutrition news or information	3.7±0.9	4.3±1.7 [a]	14.1±5.2
Poll	14.6±3.4[a,b,c,d]	5.1±1.1[a,b]	13.4±3.5
Request for participants to suggest a tip to other users	9.1±2.7[b,c]	6.2±1.1[a,b,c]	14.5±3.8
P value for difference among five post types	*P*<0.001	*P*<0.001	*P*=0.67

[a] Significantly greater than weight-related posts, *P*<0.01

[b] Significantly greater than recipe posts, *P*<0.01

[c] Significantly greater than nutrition news/information posts, *P*<0.01

[d] Significantly greater than requests to suggest a tip, *P*<0.01

Table 5 | Number of views, comments, poll votes, and likes by engagement group type

Type of engagement (view, comment, poll vote, and like)	Engagement group type	*N*	Mean (±SD)	*P* value
Total views	Joined, high engagers	15	58.00 (±24.20)	*P*<0.001
	Joined, low engagers	15	16.20 (±18.85)	
Total comments, poll votes, and likes	Joined, high engagers	15	41.53 (±37.85)	*P*<0.001
	Joined, low engagers	15	1.00 (±1.31)	

prompted the most comments or poll votes as compared to weight-related ($P<0.001$) and suggestions ($P<0.001$), whereas polls ($P<0.001$) and suggestions ($P<0.05$) both generated more user likes than weight-related posts. Comparing just nutrition news and recipes, nutrition news items generated significantly more comments ($P=0.02$) and likes ($P<0.05$) than recipe posts.

At 6 months, participants who joined Facebook and completed the question on the 6-month survey ($n=21$) were asked which of the Facebook post types they preferred the most. Opposite of the findings measuring participant response to post type, 52 % ($n=11$) reported they preferred posts containing recipes, 29 % ($n=6$) reported they preferred nutrition news and facts, 14 % ($n=3$) reported they preferred polls asking for votes to specific questions posed by study staff, and 5 % ($n=1$) reported they preferred posts asking for suggestions from the group.

Participant-initiated posts versus counselor-initiated posts

During the 4-month maintenance phase, there were 38 participant-initiated posts and 76 counselor-initiated posts. Counselor-initiated posts generated significantly more comments (7.5±5.0 per post for counselors, 0.7 ±1.0 per post for participants; $P<0.001$), likes (4.3± 1.7 per post for counselors, 0.9±1.0 per post for participants; $P<0.001$), and views (14.4±3.9 per post) compared to participant posts (3.5±1.4 per post). No difference was found in the number of comments ($P=$ 0.18) or likes ($P=0.18$) from participants in response to a participant-initiated post among the days in which the five different post types appeared. This demonstrated that counselor posts about weight, nutrition, etc. did not differentially prompt participants to submit more original posts on their own.

Participant engagement and weight loss at 6 months

The relationship between participant engagement (as assessed by the total number of participant-initiated posts, comments, poll votes, and likes) with weight loss during the 4-month maintenance period was examined. Because attendance at monthly meetings was higher for participants who signed up for the Facebook groups and were engaged, models were adjusted for the number of maintenance meetings each participant attended. Facebook engagement was significantly associated with weight loss during the 4-month maintenance period ($B=-0.09$, $P=0.04$) such that for every ten posts or likes to Facebook, participants lost a mean of 0.43 kg.

DISCUSSION

The purpose of this study was to determine what types of posts prompt the most participant engagement in the context of Facebook support groups during the maintenance phase of a weight loss intervention. In addition, the paper sought to examine the impact engagement with a social network has on weight loss during the maintenance phase of a weight loss study when face-to-face contact was decreased.

Participants who joined the Facebook groups and were high engagers also attended significantly more meetings than those who joined Facebook but were low engagers and those who did not join Facebook. This finding highlights the need for researchers to examine ways to better engage those that are not participating in interventions. Participants could have also engaged with these posts in ways that the authors were not able to measure such as making recipes suggested by counselors or reading news stories without liking them on Facebook. Other studies have also reported difficulty maintaining participant engagement in social media-based weight loss programs [11]. Utilizing posts that have been shown to effectively engage participants in the context of social media-based interventions for weight loss could provide a potential avenue for retaining, increasing engagement, and enhancing weight loss outcomes among participants in these types of interventions. Providing participants with potential benefits of receiving information and social support between meetings may help participants make a more informed decision about joining groups. In addition, not all participants may benefit or enjoy engaging with a social network, so providing a variety of options for information delivery and social support to those seeking weight loss is important.

Results indicated that poll votes were the most engaging followed by suggestions for tips and weight-related posts. The least engaging posts were nutrition news and information or recipes. Greater engagement on polls, suggestions, and weight-related posts demonstrate that posts prompting participants to respond promoted engagement in this context. To the authors' knowledge, this is the first study that has examined participant engagement in response to a polling feature in the context of Facebook support groups. Informational support (providing suggestions or advice) has

been found to be a main source of social support in other weight loss interventions delivered via Twitter [23] and discussion boards [24]. Future studies using social networks to provide group support during behavioral interventions may wish to focus on post types which prompt responses from participants in order to enhance engagement.

At the end of the study, participants reported they preferred receiving (in order of most to least preferred) recipes, nutrition news, polls, and suggestions (with no one reporting they preferred the weight-related post), which was opposite from the post types that prompted the most engagement. Another study found that messages designed to target motivation, specific planning, and overcoming barriers were most preferred compared to messages prompting for self-monitoring among a group of pregnant women in a mobile-based obesity treatment program [13].

While exposure to counselor-initiated posts differed from exposure to participant-initiated posts, the number of comments and likes generated in response to counselor-initiated posts versus participant-initiated posts was statistically significant, suggesting that participants respond more to posts from counselors than posts by other participants. This finding conflicts with results from a previous study, which found that participant-to-participant communication via online support groups allowed for more immediate feedback and social support versus clinician-provided support, which typically occurred at predetermined times and was clinic-based [25]. Findings are consistent with that of social cognitive theory, specifically posts emphasizing self-control (weight posts), expectations (suggestions), and emotional coping responses (suggestions) or those that prompted participants specifically to respond resulted in higher user engagement than posts targeting situation or behavioral capability [23]. Greater participant comments and likes for counselor-initiated versus participant-initiated posts observed in this study could also be due to the randomization of posts during the week (with the exception of weight-related posts), which helped maintain participant interest throughout the study. In addition, other studies have shown that messages from health experts are viewed as more credible than those from peers or laypeople [17]. Future research should analyze the content of participant posts to determine if certain types of participant-initiated posts receive more engagement than other types. Future studies should also examine the effect of time and day on engagement.

Consistent with previous findings [23, 26], engagement in the Facebook support groups was significantly associated with weight loss during the 4-month maintenance period of this study, even after adjusting for face-to-face meeting attendance. Research in the area of social support and weight loss is mixed [27], and studies have found that in certain subgroups, such as African-Americans, social support may not enhance weight loss outcomes [28].

This study is the first to examine what types of posts most engage participants in a social media-based intervention. The present study has some limitations. Participants were mostly highly educated, white females, which decreases the ability to translate the findings to other groups. In addition, participants were not randomized to either participate in Facebook or not, since joining and participating were optional. Therefore, it is not possible to know the direction of the relationship between weight loss and Facebook engagement (such that weight loss may have prompted engagement or engagement may have promoted weight loss). About half of the participants elected not to join the Facebook groups (51 %) for the maintenance phase of the intervention resulting in a fairly small total sample size among those who joined.

There are also several strengths to the present study. Body weight and measures of Facebook engagement were objectively measured. Posts were also theoretically based and developed using social cognitive theory [14]. In addition, participants provided feedback regarding which post type they preferred at the end of the 6-month intervention.

CONCLUSIONS

Posts soliciting feedback, such as polling features, suggestions, and weight-related posts, prompt the most engagement among participants in the context of social media-based support groups. Posts reporting nutrition news and recipes are most preferred among participants in this context of weight loss interventions but does not promote high rates of responses from participants. Counselor-initiated posts have the potential to generate more engagement than participant-initiated posts. This combination of counselor-led posts, which prompted responses from participants, led to greater engagement with the Facebook groups, which was associated with weight loss during the 4-month maintenance period. Future public health initiatives that aim to promote weight loss may wish to employ social media groups as a way to deliver group support when contact with support staff decreases. In particular, using posts which prompt user response may be a more effective way to get participants to engage than posts which are more informational in content.

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Conflict of interest: Authors' Statement of Conflict of Interest and Adherence to Ethical Standards Sarah Hales, Brie Turner-McGrievy, and Charis Davidson declare that they have no conflict of interest. The clinical trial registration number for this study through ClinicalTrials.gov is NCT01742572. This research study received no funding. All procedures, including informed consent process, were conducted in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

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