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Facebook Usage Amongst Those Who Have Received Treatment for an Eating Disorder in a Group Setting

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Abstract

Objective—This study explored Facebook use among individuals with a history of receiving treatment for an eating disorder (ED) in a group setting (e.g., inpatient, residential, outpatient group), focusing primarily on comparisons individuals make about their bodies, eating, or exercise to those of their peers from treatment on Facebook and the relation between these comparisons and ED pathology.

Method—Individuals (N = 415; mean age 28.15 years ± 8.41; 98.1% female) who self-reported receipt of ED treatment in a group setting were recruited via email and social media to complete an online survey.

Results—Participants reported having an average of 10–19 Facebook friends from treatment and spending up to 30 minutes per day interacting on Facebook with individuals from treatment or ED-related organizations. More comparison to treatment peers on Facebook was associated with greater ED psychopathology and ED-related impairment. Conversely, positive interaction with treatment peers on Facebook was associated with lower ED psychopathology and ED-related impairment. Individuals who had been in treatment longer, more times, and more recently had more Facebook friends from treatment and ED-related organizations as well as spent more time in ED groups' pages on Facebook. Few participants (19.5%) reported that a therapist asked about the impact of Facebook on pathology.

Discussion—Interactions on Facebook could affect patients' recovery and potential for relapse. It may be helpful for treatment providers to discuss Facebook use and its potential benefits and drawbacks with patients preparing for discharge from group treatment.

Keywords

Facebook; social media; group treatment; eating disorders

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Social media use, and Facebook use in particular, has increased substantially in the past decade (1). In particular, 71% of Americans with Internet access and 84% of women ages 18–29 use Facebook (1), and college students have been found to use Facebook an average of 100 minutes per day (2). The ubiquitous use of social media, particularly among young adult women, has raised questions about the impact of Facebook on disordered eating and negative body image. As a key feature of Facebook focuses on viewing and posting photos (2), it is possible that Facebook contributes to negative body esteem (3–5). Specifically, users are able to present their "best selves," including posting their preferred, carefully selected photos and even digitally altered photos. Both of these strategies may be used in an effort to conform to an unrealistic beauty ideal. Other Facebook users can respond to photos via "likes," emoticons, and comments, which may reinforce this beauty ideal that impacts one's body esteem. Comparisons to peers' photos—which could represent idealized images — may result in negative body esteem as well (6). In fact, among adolescent girls, Facebook use has been associated with body dissatisfaction, internalization of the thin ideal, and eating pathology (7), and more time spent viewing photos on Facebook has been associated with greater thin ideal internalization and a stronger desire to be thin (8). Additionally, Mabe et al. (9) found that college-aged women randomized to spend time on Facebook reported more weight and shape concerns compared to those viewing a neutral web site, and Hummel and Smith (10) found that college students who received negative comments from peers on Facebook were more likely to report disordered eating concerns one month later. Maladaptive Facebook usage (characterized as the tendency to seek negative social evaluations and/or engage in social comparisons on Facebook) predicted increased eating pathology four weeks later in a large sample of college women (11), and a recent study suggested that physical appearance comparisons may drive the relationship between Facebook intensity (defined as time spent on Facebook, number of Facebook friends, and integration of Facebook into daily life) and disordered eating (12).

All of the studies described in the preceding paragraph utilized non-clinical samples (6–8, 9–11), and only one assessed for clinically significant eating disorder symptoms (with 13.6% of the sample reporting scores in the clinically significant range) (7–9, 12). However, it is possible that Facebook could also have negative consequences for patients with clinical eating disorders, particularly for individuals who have received treatment in a group setting. Although group-based treatments across many levels (i.e., inpatient, residential, partial hospitalization, intensive outpatient, outpatient therapy group) may provide a positive avenue for increasing peer support, reducing social isolation, practicing newly-learned interpersonal skills, modeling healthy relationships, and facilitating adolescent development (13–16), relationships formed in treatment centers can also have iatrogenic effects (17, 18). During treatment, patients may become competitive with one another (e.g., comparing who eats or weighs the least; 19), which may negatively impact patients' success in treatment. Patients also often identify strongly with their treatment peers and endorse having a hard time integrating back into social networks with the friends they had before entering eating disorder treatment (18).

Anecdotally, clinicians have reported cautioning their patients against staying in touch with treatment peers, as such contact could serve as a trigger for eating disorder symptoms.

Patients regularly compare their weight, shape, and eating habits to peers during eating disorder treatment (19), and when this comparison continues outside of a treatment center or when patients no longer have access to therapeutic supports to manage associated triggers, there is the potential that these comparisons could thwart a patient's recovery. The rapid expansion of social media may make isolation from treatment peers more difficult because it affords more opportunities for comparison outside of the treatment milieu. Specifically, following treatment, patients may make active attempts to sustain relationships with treatment peers, including engaging with each other via Facebook (20). Numerous "treatment alumni groups" have emerged on Facebook, providing patients with an easy way to stay in contact with treatment peers (21–23), and this may invite increased weight, shape, and eating comparisons between themselves and their peers. Thus, it is important to understand Facebook use among patients who have received eating disorder treatment in a group setting and evaluate whether interactions on this social media platform are associated with eating disorder psychopathology. Such findings would inform recommendations regarding effective maintenance of treatment gains for patients transitioning out of group-based care.

This study aimed to explore Facebook use among individuals who have received treatment for an eating disorder in a group setting (i.e., inpatient, residential, partial hospitalization, intensive outpatient, outpatient therapy group). This study focused primarily on comparisons individuals make about their bodies, eating, or exercise to those of their peers from treatment (herein referred to as "treatment peers") on Facebook after leaving the group setting, and in particular, we assessed the relation between comparisons to treatment peers on Facebook and eating disorder pathology. We hypothesized that comparison to treatment peers on Facebook would be significantly associated with eating disorder psychopathology. As secondary aims, we evaluated whether length and recency of treatment were associated with time spent interacting with the "online eating disorder community" on Facebook (defined as having both Facebook friends from treatment and friends from the "broader eating disorder community" – meaning those individuals who were introduced on Facebook through treatment peers or through eating disorder-related groups – and spending time posting in eating disorder groups and pages on Facebook), whether time spent interacting with the online eating disorder community was associated with comparisons to treatment peers on Facebook, and whether these comparisons to treatment peers on Facebook differed by most recent eating disorder diagnosis. We were interested in these secondary aims given past research showing that those with a longer illness duration tend to have a more ingrained eating disorder identity (24) and that individuals with anorexia nervosa (AN) often identify and relate most strongly to treatment peers (18). Further, we choose to expand our analysis to those from the "broader eating disorder community" when investigating time spent on Facebook because of the plethora of eating disorder community groups that have been established on Facebook and that may attract individuals who have been in treatment for an eating disorder. We hypothesized that (a) length of eating disorder treatment (e.g., longer duration in treatment, higher number of treatments) would be significantly associated with time interacting with the online eating disorder community on Facebook; (b) more recent discharge from treatment would be significantly associated with time spent interacting with the online eating disorder community on Facebook; (c) time spent interacting with the online

eating disorder community on Facebook would be significantly associated with comparison to treatment peers on Facebook; and (d) those with a recent diagnosis of AN would endorse comparisons with treatment peers that were significantly different than comparisons with others. We were also interested in whether comparisons to treatment peers on Facebook had any positive benefits.

METHODS

Participants

Individuals were invited to participate in the study if they were currently in treatment for an eating disorder in a group setting or had previously received treatment for an eating disorder in a group setting. Group setting was defined as participating in treatment in at least one of the following treatment settings involving a group component: inpatient, residential, partial hospitalization, intensive outpatient, and/or outpatient therapy group. For the purposes of this study, inpatient treatment was defined as hospital-based treatment programs in which participants slept overnight, ate all of their meals, and had 24/7 supervision. Residential treatment was defined as treatment programs in which participants slept overnight and ate all of their meals in a non-hospital setting. Day or partial hospitalization treatment was defined as treatment programs in which participants were expected to present to treatment at least five days per week and ate at least two main meals per day there, but slept at home. Intensive outpatient treatment was defined as treatment programs in which participants ate at least three meals per week there, but slept at home. Outpatient psychotherapy groups were defined as treatment programs in which individuals met weekly in a group, facilitated by an eating disorder treatment professional, with other patients with eating disorders.

Additional inclusion criteria included having internet access to complete the online survey and being at least 18 years of age. A total of 960 individuals initiated the online survey. Participants who had only received individual outpatient therapy ($n = 46$), were below the age of 18 ($n = 50$), or who did not complete the online survey ($n = 449$) were excluded from the analyses, yielding a final sample of 415 individuals. Data on age, gender, and most recent self-reported eating disorder diagnosis were available for many non-completers, as these questions were presented early in the survey. Results indicated that completers and non-completers did not differ in average age, $t(678) = 1.22$, $p = .224$, percent female, $\chi^2(1) = .08$, $p = .785$, or percent with AN versus other diagnoses, $\chi^2(1) = 1.64$, $p = .201$.

Procedure

Participants were recruited via social media and email. Specifically, individuals were invited to participate in a study “exploring the Facebook usage of individuals who had received treatment for an eating disorder in a group setting.” Information was posted about the survey in social media communities and on listservs with followers from the eating disorder community (e.g., Project HEAL Facebook page, National Eating Disorder Association Facebook page, International Association for Eating Disorder Professionals Facebook page, eating disorder treatment center newsletters). All postings included the hyperlink to the electronic survey.

Participation was anonymous and voluntary, and individuals completed the surveys in a setting of their choice. No compensation was provided. Survey completion was designed to take approximately 20 to 30 minutes. Informed consent was obtained electronically prior to completion of the online survey. This study was reviewed and approved by the Institutional Review Board of the study site.

Measures

Demographics, Eating Disorder Diagnostic History, and Treatment History— Demographic data were collected on participants' age, race/ethnicity, household income, and highest education level. Information was also collected on participants' most recent self-reported eating disorder diagnosis [i.e., AN, bulimia nervosa (BN), binge eating disorder (BED), or eating disorder not otherwise specified (EDNOS) or other specified feeding or eating disorder (OSFED)], as well as current and past eating disorder treatment history. We inquired about both current and past *Diagnostic and Statistical Manual of Mental Disorders* diagnoses (DSM-IV-TR and DSM-5), as participants may have received an eating disorder diagnosis before the most recent version of the DSM was released. The following information on treatment history was collected: type (i.e., inpatient, residential, day or partial hospitalization, intensive outpatient, and/or outpatient therapy group); overall length of time spent in inpatient, residential, day/partial, intensive outpatient treatment, and/or outpatient psychotherapy groups; number of separate times in treatment; duration of most recently completed treatment; and duration since most recent treatment discharge.

Facebook Usage—Information was collected on the amount of time participants spent on Facebook per day, their number of "friends" on Facebook from eating disorder treatment, and their number of friends on Facebook from the broader eating disorder community. Participants also reported on the amount of time spent per day looking at pictures and "wall" posts of friends on Facebook from eating disorder treatment and from the broader eating disorder community, as well as time spent per day communicating with these friends via Facebook (i.e., via individual messaging, writing on their walls). Data were collected on the number of eating disorder-related Facebook group pages of which participants were a member, as well as how much time per day they spent looking at these groups. All of these Facebook usage questions were asked using continuous variable anchors (e.g., the average daily time spent looking at photos of Facebook friends from the broader eating disorder community was rated on a scale ranging from 1–9, with a response option of "1" equating to 0–14 minutes, a response option of "2" equating to 15–29 minutes, and a response option of "9" equating to more than 2 hours). We used this approach as we believed that providing anchors would help facilitate responses to questions that participants may find difficult to report on using free recall. This method has been utilized in past studies of Facebook usage (7, 25). Finally, participants were asked about the number of times per week they posted in eating disorder-related Facebook groups/pages, their most used social media site (i.e., Facebook, Twitter, Instagram, or LinkedIn), and whether a therapist has asked them about the impact of Facebook use on eating disorder thoughts and behaviors.

Relationships and Comparisons to Treatment Peers—A 23-item questionnaire was developed for the purposes of this study to assess relationships and comparisons to treatment

peers generally (9 items) and those specifically on Facebook (14 items). Development of these items was informed by the Body, Eating, and Exercise Comparison Orientation Measure (26), an 18-item scale used to assess general tendencies to compare one's body, eating, and exercise to peers. Our research team originally created 30 items. These items were then sent to patients who were in recovery (n=10) or had recovered from an eating disorder (n = 10) and clinicians from eating disorder treatment centers (n = 15) for feedback, edits, and additional items. Based on these individuals' feedback, items were revised, and a final set of 23 items was created. Participants were asked to rate how strongly they agreed or disagreed with each item on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating a greater degree of identification with and comparison to treatment peers.

Two separate principal component analyses using oblimin rotation were conducted: one analysis on the 9 items designed to assess relationships and comparisons to peers generally and one analysis on the 14 items designed to assess relationships and comparisons to peers specifically on Facebook. Two analyses were conducted because offline and online comparisons were conceptualized as two distinct domains, thus warranting separate principal component analyses.

The first principal component analysis yielded two components with eigenvalues >1.0 and pattern matrix loadings >0.70 on only one component for eight scale items. Five items loaded on the first component ("Relationships and Identification with Treatment Peers"; example item: "It's easier for me to talk to my treatment peers than to most others in my life"), and three items loaded on the second component ["General Comparison to Treatment Peers"; example item: "I find myself thinking about how my eating (e.g., food choices, amount eaten) compares with the eating of my treatment peers"]. One item was deleted due to not loading clearly onto either component. Alphas for the two generated subscales were 0.89 and 0.90, respectively.

The second principal component analysis yielded two components with eigenvalues >1.0 and pattern matrix loadings >0.56 on only one component for 10 scale items. Six items loaded on the first component ("Negative Comparisons to Treatment Peers on Facebook"; example item: "I pay attention to whether or not I am as thin as, or thinner, than my treatment peers based on their pictures on Facebook"), and four items loaded on the second component ("Positive Interactions with Treatment Peers on Facebook"; example item: "Looking at my treatment peers' Facebook pages has spurred me to take positive steps to further my recovery"). Four items were deleted because they did not seem substantively different from retained items and either did not load clearly on either component or had lower loadings than retained items. Alphas for the two generated subscales were 0.92 and 0.75, respectively. Table 1 includes all retained scale items.

The **Eating Disorder Examination-Questionnaire (EDE-Q)** is a 36-item self-report questionnaire based on the Eating Disorder Examination and is used to assess eating disorder thoughts and behaviors over the previous 28 days (27). Items are rated on a 0–6 scale, with higher scores indicating greater eating disorder pathology. The EDE-Q yields four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern. The EDE-Q

Global score is an average of these four subscale scores, and a score above 4 indicates a probable eating disorder case (28, 29). The EDE-Q has shown good reliability and validity for assessing eating disorder psychopathology (30). In the current study, alpha was 0.95 for the Global score and ranged from 0.76–0.88 for the subscales.

The **Clinical Impairment Questionnaire (CIA)** is a self-report questionnaire designed to assess current psychosocial impairment associated with having an eating disorder (31). The 16-item measure assesses impairment over the past 28 days, from the time of being assessed, across four domains: mood and self-perception, cognitive functioning, interpersonal functioning, and work performance. Items are rated on a 4-point scale ranging from 0 (not at all) to 3 (a lot), with higher scores indicating greater psychosocial impairment. A global impairment score of 16 serves as the cut-off point for predicting eating disorder case status (31, 32). The CIA has shown good reliability and validity in previous studies (31, 32). In the current study, alpha was 0.97.

Analytic Strategy

Analyses were run using SPSS Version 19. To test the primary hypothesis, multiple regression analyses were used to evaluate relations between relationships and comparisons to treatment peers (as measured via the Relationships and Comparisons to Treatment Peers subscale scores, entered jointly) and eating disorder pathology (as measured via the EDE-Q and CIA). To test the secondary hypotheses, correlations were used to evaluate the relations between treatment history variables and eating disorder community Facebook usage, as well as the relations between eating disorder community Facebook usage and relationships and comparisons to treatment peers. Additionally, a multivariate analysis of variance (MANOVA) was used to examine whether the Relationships and Comparisons to Treatment Peers subscale scores significantly differed by most recent self-reported eating disorder diagnosis as a set. All tests were two-tailed, and *p*-values less than .05 were considered statistically significant.

RESULTS

1. Demographics

Participants ranged in age from 18 to 56 years, with a mean age of 28.15 years (*SD* = 8.41). The majority of participants (98.1%) were female, with 1.7% of participants identifying as male and 0.2% identifying as an “other” gender. Most participants (92.8%) identified as Caucasian, 0.5% as African American or Black, 0.2% as Asian or South Asian, 0.5% as American Indian or Alaska Native, 1.4% as an other race, and 4.6% as bi- or multi-racial; 4.6% of participants identified as Hispanic. Participants’ mean level of education equated to between the response options of 2-year associate’s degree and a 4-year college degree. Participants’ mean total household income equated to between the response options of “$35,000 to $49,999” and “$50,000 to $74,999.” In terms of most recent diagnosis, 53.7% of participants reported being most recently diagnosed with AN, 12.3% with BN, 2.9% with BED, and 31.1% with EDNOS or OSFED. On average, participants reported that their eating disorder first began at age 13.84 years (*SD* = 4.54) and that they were first diagnosed by a healthcare professional with an eating disorder at age 19.50 years (*SD* = 6.38). At the

time of completing the survey, 12.8% of participants endorsed currently receiving eating disorder treatment in a group setting.

Means and standard deviations for treatment history, Relationships and Comparisons to Treatment Peers subscale scores, and eating disorder psychopathology are presented in Table 2. On average, participants had been in treatment 8.24 times (*SD* = 9.24), for a total of 66.73 weeks (*SD* = 53.41) (including intensive outpatient treatment and outpatient therapy groups). Participants' mean EDE-Q Global score was 3.04 (*SD* = 1.41), which was below the clinical cut-off of 4 (27, 28), and the mean CIA score was 25.00 (*SD* = 14.22), which was above the clinical cutoff of 16 (31, 32).

Participants' average number of Facebook friends from treatment, rated from 1–12 categories, was 3.92 (*SD* = 2.23), with "4" representing 10–19 Facebook friends from treatment. Participants' average number of Facebook friends from the broader eating disorder community, rated from 1–17 categories, was 4.48 (*SD* = 2.81), with "4" representing 5–9 Facebook friends and "5" representing 10–19 Facebook friends from the broader ED community. Participants' average daily time spent looking at photos of Facebook friends from the broader eating disorder community, rated from 1–9 categories, was 1.33 (*SD* = 0.85), with "1" representing 0–14 minutes and "2" representing 15–29 minutes. Participants' average daily time spent looking at wall posts of Facebook friends from the broader eating disorder community, rated from 1–9 categories, was 1.49 (*SD* = 1.07), with "1" representing 0–14 minutes and "2" representing 15–29 minutes. Participants' average daily time spent communicating with Facebook friends from the broader eating disorder community, rated from 1–9 categories, was 1.43 (*SD* = 1.05), with "1" representing 0–14 minutes and "2" representing 15–29 minutes. The mean number of eating disorder group/page memberships on Facebook was 4.22 (*SD* = 5.74). Participants' average daily time spent in eating disorder-related groups/pages, rated from 1–9 categories, was 1.55 (*SD* = 1.18), with "1" representing 0–14 minutes and "2" representing 15–29 minutes. The mean number of posts to these groups/pages per week was 1.12 (*SD* = 3.68).

Two thirds (66.0%) of participants endorsed Facebook as their most frequently used social media site in comparison to Twitter, Instagram, and LinkedIn. One fifth (19.5%) of participants endorsed that a therapist ever asked them about the impact of Facebook on their eating disorder thoughts and behaviors.

2. Comparison to Treatment Peers and Eating Disorder Pathology

Table 3 presents results of the regression analyses examining the relations between the Relationships and Comparisons to Peers from Treatment subscale scores and eating disorder pathology (i.e., EDE-Q Global score, EDE-Q subscale scores, CIA scores). In partial support of the hypothesis that comparison to treatment peers on Facebook would be associated with greater eating disorder psychopathology, higher "Relationships to and Identification with Treatment Peers," "General Comparison to Treatment Peers," and "Negative Comparison to Treatment Peers on Facebook" subscale scores were associated with higher levels of all facets of eating pathology examined, with two exceptions (ps < .046). Specifically, "Relationships to and Identification with Treatment Peers" was not a significant predictor of EDE-Q Restraint (p = .878), and "Negative Comparison to Treatment

Peers on Facebook" was not a significant predictor of EDE-Q Eating Concern ($p = .068$). Interestingly, higher "Positive Interactions with Treatment Peers on Facebook" subscale scores were associated with lower EDE-Q Global, Shape Concern, and Weight Concern scores (ps < .048).

3. Secondary Hypotheses

Associations Between Treatment History Variables and Eating Disorder Community Facebook Usage—Table 4 presents correlations between amount of treatment (e.g., overall length, overall number of treatments, length of most recent treatment), time since last treatment, and eating disorder community Facebook usage. In partial support of the hypothesis that length of eating disorder treatment would be associated with time interacting with the online eating disorder community on Facebook, it was found that greater overall length of time in treatment was significantly positively correlated with number of Facebook friends from treatment ($r = .24$, $p < .001$), number of Facebook friends from the eating disorder community ($r = .13$, $p = .011$), and time per week spent posting in eating disorder groups or pages ($r = .16$, $p = .001$), but was not significantly correlated with other measures of eating disorder community Facebook use (ps > .162). Greater overall number of treatments was significantly positively correlated with number of Facebook friends from treatment ($r = .21$, $p < .001$) and number of Facebook friends from the eating disorder community ($r = .10$, $p = .049$), but was not significantly correlated with other measures of eating disorder community Facebook use (ps > .058). Length of most recent treatment was not significantly correlated with any of the eating disorder community Facebook usage variables (ps > .076). In partial support of the hypothesis that more recent discharge from treatment would be associated with time spent interacting with the online eating disorder community on Facebook, it was found that time since last treatment was significantly negatively correlated with number of Facebook friends from treatment ($r = -.25$, $p < .001$), time spent looking at photos of Facebook friends from the eating disorder community ($r = -.16$, $p = .001$), time spent looking at wall posts of Facebook friends from the eating disorder community ($r = -.14$, $p = .004$), and time spent per day viewing eating disorder related groups/pages ($r = -.11$, $p = .032$), but was not significantly correlated with other measures of eating disorder community Facebook use (ps > .135).

Association between Relationships and Comparisons to Treatment Peers and Eating Disorder Community Facebook Usage—Table 5 presents correlations between eating disorder community Facebook usage measures and the Relationships and Comparisons to Treatment Peers subscale scores. In partial support of the hypothesis that time spent interacting with the online eating disorder community on Facebook would be associated with comparison to treatment peers on Facebook, we found that greater endorsement of all eating disorder community Facebook usage variables was significantly correlated with higher scores on the "Relationships to and Identification with Treatment Peers" subscale. Time spent looking at photos ($r = .22$, $p < .001$) and wall posts ($r = .21$, $p < .001$) of Facebook friends from the eating disorder community and time spent per day viewing eating disorder community groups or pages ($r = .14$, $p = .003$) were all significantly correlated with higher scores on the "General Comparisons to Treatment Peers" subscale. Number of Facebook friends from treatment ($r = .11$, $p = .022$), time spent looking at photos

(r =.30, p < .001) and wall posts (r = .23, p < .001) of Facebook friends from the eating disorder community, and time spent per day viewing eating disorder community groups/pages (r = .16, p = .002) were all significantly correlated with higher scores on the "Negative Comparison to Treatment Peers on Facebook" subscale. All eating disorder community Facebook usage variables except for the number of Facebook eating disorder group/pages memberships (p = .081) were significantly correlated with higher scores on the "Positive Interactions With Treatment Peers on Facebook" subscale.

Relationships and Comparisons to Treatment peers Subscale Scores and Eating Disorder Diagnosis—Finally, a MANOVA was used to used to examine whether the Relationships and Comparisons to Treatment Peers subscale scores—entered as a set—significantly differed by most recent self-reported eating disorder diagnosis (i.e., AN, BN, BED, OSFED). Results revealed that the subscales did not significantly differ by most recent self-reported eating disorder diagnosis, (F(12,1053) = 1.41, Wilks' Lambda = .96, p = .155).

DISCUSSION

The aim of this study was to evaluate Facebook use among individuals who have received treatment for an eating disorder in a group setting, with the primary focus being on the relationship between comparisons to treatment peers on Facebook and eating disorder pathology. Facebook interaction with treatment peers was a common occurrence, with participants reporting having an average of 10–19 Facebook friends from treatment and spending up to 30 minutes per day on average interacting with individuals from the eating disorder community on Facebook. Additionally, two thirds of participants endorsed Facebook as their most frequently used social media site, corroborating past research on the pervasive use of Facebook (1, 2). To our knowledge, this is the first study to evaluate Facebook usage among individuals with a history of eating disorder treatment.

Past research has indicated that more time on Facebook is associated with greater body dissatisfaction, internalization of the thin ideal, and eating disorder pathology in non-clinical samples (7–9, 12). Our work extends this previous research and corroborates past results by showing similar associations among individuals who have received treatment for an eating disorder in a group setting. Specifically, we found that more comparison to treatment peers on Facebook was associated with greater eating disorder psychopathology, which aligns with past research finding that greater social comparison is associated with greater eating disorder pathology (33–35). Further, this association remained significant after controlling for general comparison to treatment peers and identification with treatment peers. Although our cross-sectional data cannot explore the temporal relationship between treatment peer comparisons and eating disorder pathology (i.e., whether comparisons to peers results in heightened pathology or whether heightened pathology leads individuals to compare themselves more often to treatment peers), it is likely that the relationship between peer comparisons and heightened pathology is reciprocal and at least temporarily degenerative. These results suggest that future exploration of the directionality of this relationship and the underlying mechanisms may be important for informing intervention targets to reduce treatment peer comparisons and associated eating disorder attitudes and behaviors.

We also examined relations between amount of treatment, time since last treatment, eating disorder diagnostic subtype, and eating disorder community Facebook usage. Notably, overall length of time spent in treatment was significantly correlated with number of friends from treatment on Facebook. Further, shorter time since last treatment was significantly correlated with the amount of time spent interacting with the eating disorder community on Facebook. As time spent in the eating disorder community on Facebook was significantly correlated with eating disorder psychopathology, these findings suggest that those who have recently left group treatment for an eating disorder may be particularly vulnerable to the harmful effects of Facebook comparisons to treatment peers. Treatment centers would be wise to include discussions of Facebook in their discharge planning, particularly in terms of the potentially harmful effects of spending time making comparisons to others from treatment. However, just under 20% of study participants reported having a therapist ask about Facebook and its impact on pathology. Accordingly, therapists should proactively engage this issue with their patients who are preparing for or have recently discharged from group treatment. Therapists and patients are encouraged to collaboratively identify plans for how patients will use Facebook following treatment, including discussions regarding what behaviors would be helpful versus harmful to their recovery. For example, patients could set goals to join recovery-oriented pages on Facebook, pledge to resist urges to engage in social comparison with former treatment peers, and agree to refrain from posting body-focused pictures on Facebook once they return home from treatment. Moreover, even though participants rated Facebook as their most commonly used form of social media, it would be helpful to discuss patients' plans for engaging with other social media platforms as well.

Only certain eating disorder community Facebook usage measures were significantly correlated with comparisons to treatment peers. Notably, time spent looking at photos and wall posts of friends from treatment were factors most highly correlated with the comparison subscale scores. Beyond this, time spent actively communicating with treatment peers on Facebook (e.g., sending messages, writing on peers' Facebook walls) was not significantly correlated with the "Negative Comparisons to Treatment Peers on Facebook" subscale score. This indicates that the negative effects of comparisons to treatment peers may be driven by passively comparing (i.e., looking at Facebook pages without communicating) versus more actively engaging with treatment peers. This finding aligns with past research showing that passive following of others on Facebook is associated with decreased life satisfaction (36). Future studies should investigate this possible distinction between active versus passive Facebook use amongst those who suffer from eating disorders. Further, it may be helpful for treatment centers to consider moderating their alumni Facebook groups and encouraging active engagement rather than passive comparison. For example, treatment center Facebook pages could post a "question of the day" inquiring about what tools treatment alumni use to stay in active recovery and what inspires them to stay healthy, or create a moderated discussion forum for alumni, modeled after pre-existing Internet-based prevention programs that have shown success in reducing weight and shape concerns and preventing eating disorders in a high risk sample (e.g., 37, 38). Using online forums as a step-down intervention following more intensive care could be a cost-efficient method for helping patients sustain peer support in a healthy manner. Treatment centers could also utilize their alumni group Facebook webpages as places to advertise and connect alumni to recovery-

oriented, in-person community events, such as walks hosted by eating disorder awareness organizations and recovery speaker panels that encourage users to get offline and build in-person connections to peers.

It is difficult to assess whether comparison to treatment peers in and of itself is harmful or if there is something uniquely damaging about engaging in these comparisons on Facebook. Findings showed that “General Comparison to Treatment Peers” subscale scores (which assessed for comparisons to treatment peers that are not limited to comparisons made on Facebook, such as “I find myself thinking about how my exercise level compares to that of my treatment peers”) and “Negative Comparison to Treatment Peers on Facebook” subscale scores were both associated with similarly heightened eating disorder pathology. Moreover, “Relationships and Identification with Treatment Peers” subscale scores (which assessed participants’ cognitions about their treatment peers that were not necessarily tied to Facebook, such as “I find it hard to connect with my peers who have not had an eating disorder”) were associated with heightened eating disorder pathology. Taken together, these results invite future research to tease apart whether comparisons to treatment peers in general or on Facebook are particularly harmful. Given that the rise of social media, and Facebook in particular, has facilitated more opportunities to stay in touch with treatment peers after treatment—especially among peers from residential or inpatient programs who may reside outside the local area of their treatment peers—better understanding these comparisons is warranted for informing post-treatment recommendations. Future studies should also assess the prevalence of patients who remain friends and meet up in person with treatment peers after discharge, and whether in-person comparison leads to similar, or perhaps magnified, eating disorder psychopathology.

On a more hopeful note, positive interaction with treatment peers on Facebook (such as endorsement of the statement “Looking at my treatment peers’ Facebook pages has spurred me to take positive steps to further my recovery”) was associated with lower eating disorder psychopathology. This finding suggests that there can be benefits to engaging with former treatment peers on Facebook and supports the idea that a tailored use of Facebook could enhance the recovery process after treatment. As more “recovery oriented” groups like Project HEAL and Proud2BMe (which have large followings of individuals who have been in eating disorder treatment) emerge on social media, it will be important to identify under what conditions peer support from those who have had an eating disorder may be harmful and under what conditions it may be helpful and actually promote recovery and wellness. Previous studies on pro-anorexia websites will be informative here: in addition to the myriad and unsurprising negative effects of participation on these sites, including negative attitudes towards recovery, body dissatisfaction, decreased self esteem, and eating disturbances (39–41), users have identified some positive aspects of engagement on these sites, including a feeling of being understood (40, 42) and emotional stabilization (43). Accordingly, it will be important to investigate how social media can be harnessed for good rather than harm in facilitating sustained recovery following eating disorder group treatment. For example, social media could be utilized for posting specific, recovery oriented goals (e.g., making plans with non-treatment peers, trying a fear food) or challenging negative cultural messages associated with health and thinness.

It is also important to highlight that while relationships with peers from eating disorder treatment may present unique challenges, improving peer relationships in general is crucial in promoting a full and lasting recovery. Those with eating disorders often have impaired interpersonal relationships (44), which can serve as a maintaining factor for eating disorder symptoms (45). Moreover, higher levels of social intimacy are correlated with higher levels of happiness and subjective well-being (46), positive social evaluation from peers can reduce negative affect and low body esteem that precipitate unhealthy eating patterns (45), and pursuing positive social interactions provides occasions to practice newly-learned healthy behaviors across a range of contexts to generalize and sustain behavior change (47). Thus, clinicians should encourage patients preparing for treatment discharge to actively reengage with their non-treatment peers to establish healthy relationships and positive social ties, as this may reduce time spent using, and engagement in unhealthy social comparisons, on Facebook.

While the current study benefits from a robust sample of participants with various eating disorder group treatment experiences, the results should be interpreted with limitations in mind. Most notably, this is a convenience sample of those who elected to participate in an online survey. Survey completion took approximately 20 to 30 minutes, and we offered no benefits to participation, which may have contributed to high levels of non-completion (57%). Importantly though, there were no differences in age, gender, or most recent self-reported eating disorder diagnosis by completer status. Furthermore, our convenience sample was primarily Caucasian and female. Second, though our inclusion of individuals who had received an eating disorder diagnosis to warrant treatment, and breadth of treatment history and illness severity are strengths of this study, we unfortunately did not assess individuals' history of eating disorder diagnoses. We are therefore limited in our ability to draw conclusions about how these findings generalize across different subsets of patients with eating disorders. However, importantly, the current sample is similar terms of diagnostic breakdown (48, 49) and number of previous hospitalizations (50, 51) to samples of those hospitalized for an eating disorder in a group setting. Though our initial results seem to suggest that comparison to treatment peers is a transdiagnostic phenomenon, future studies should investigate this further. Third, we assessed Facebook *usage* with data about both Facebook friends from treatment and also friends from the broader eating disorder community, but our analyses were limited in that we only collected data on and evaluated the *relationship between comparison and eating pathology* among Facebook friends from treatment. It is possible that the association between comparison and eating pathology differs between treatment peers and other friends on Facebook, and analyzing this relationship amongst Facebook friends from the broader eating disorder community and other peer groups may be an important avenue for future study. Fourth, our data are limited in that they are based on self-report. Objective data on Facebook usage and participant demographics (e.g., treatment history) would enhance study findings and are an area for future exploration. Finally, our Relationships and Comparisons to Treatment Peers Scale was created for the current study. Though analyses support its initial psychometric validity, this measure would benefit from additional validation (e.g., examination of test-retest reliability and predictive validity).

As this was the first study to examine Facebook use among individuals who have been in treatment for an eating disorder in a group setting, results inform several areas for further exploration in future research. It would be interesting to obtain more specificity on participants' activities on Facebook (e.g., how much time they spend looking at pictures of treatment peers, perusing eating disorder groups, and communicating with eating disorder treatment peers) via study in a laboratory setting or via the use of ecological momentary assessment where participants provide in-the-moment reporting of the frequency of different behaviors in which they engage on Facebook each day for a specified period of time. It would also be informative to compare Facebook activity specific to interacting with treatment peers versus non-treatment peers, to examine whether comparisons to treatment peers remain significant above general peer comparison on Facebook. Exploring whether the association between comparison to treatment peers and eating disorder psychopathology is mediated by an individual's motivation to recover is also warranted. Qualitative research evaluating the text content of Facebook postings and its relation to eating disorder pathology may highlight novel intervention strategies for reducing potentially harmful effects of Facebook use. Finally, given the ubiquitous use of social media, particularly among emerging adults and adult females (1–12), it may be useful to inquire about use of social media in clinical assessments to guide treatment and discharge planning.

Because most of the benefits or drawbacks of interaction with treatment peers on Facebook depend on how the user perceives these interactions, and which interactions he/she finds the most salient, a mixed method qualitative and quantitative study might be most revealing. A possible future study would involve randomizing a small group of patients leaving inpatient/residential treatment to use Facebook a certain amount of time each week, and conducting quarterly focus groups for the following year about their Facebook usage. Such an investigation would not only capture how these patients are spending their time on Facebook (e.g., actively versus passively communicating with treatment peers, time spent looking at treatment peers' pages rather than non-treatment peers), but more importantly, would provide insight into how these patients feel about these interactions and whether they feel that their Facebook usage is helping or hindering their recovery. Patient perspectives should guide future investigation on this topic.

In sum, the challenges associated with sustaining eating disorder treatment gains highlight the importance of identifying opportunities to facilitate success following treatment. Results of this study showed that after discharge from group eating disorder treatment, comparison to treatment peers on Facebook is a common occurrence and is associated with eating disorder psychopathology. Clinicians should address Facebook interaction with past treatment peers and assess its psychological impact with their patients who are preparing for or have recently discharged from group treatment. Moreover, clinicians are encouraged to help patients foster meaningful and healthy peer relationships to facilitate healthy development and to sustain eating disorder recovery over the long-term. Future research is needed to more clearly identify under which conditions interaction with past treatment peers on Facebook is harmful, and under which conditions it is helpful, and how we can better tailor patients' experiences on Facebook to be most beneficial to their recovery.

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Table 1

Relationships and Comparisons to Treatment Peers Scale

Relationships to and Identification with Treatment Peers Subscale
1. It's easier for me to talk to my treatment peers than to most others in my life.
2. I miss being surrounded by peers in treatment who accepted me.
3. I feel that the friends I met in treatment were some of the strongest friendships I've ever made.
4. I find it hard to connect with my peers who have not had an eating disorder.
5. My treatment peers understand me more than others in my life.
General Comparison to Treatment Peers Subscale
6. I compare my body shape to that of my treatment peers.
7. I find myself thinking about how my eating (e.g., food choices, amount eaten) compares with the eating of my treatment peers.
8. I find myself thinking about how my exercise level compares to that of my treatment peers.
Negative Comparisons to Treatment Peers on Facebook Subscale
9. I spend time looking at pictures of people from treatment on Facebook, trying to see if they've gained or lost weight.
10. I pay attention to whether or not I am as thin as, or thinner, than my treatment peers based on their pictures on Facebook.
11. I pay close attention when I see my treatment peers posting about exercise on Facebook (in order to see how the amount they exercise compares to the amount I exercise).
12. I pay close attention when I see my treatment peers posting about things they ate on Facebook (in order to determine how my eating habits compare to theirs).
13. When I think that someone from treatment has lost weight based on their Facebook pictures, it makes my eating disorder feel competitive.
14. I compare my progress in treatment to that of my treatment peers.
Positive Interaction with Treatment peers on Facebook Subscale
15. I find myself "checking in" with people from treatment on Facebook to see how they are doing.
16. My peers from treatment motivated me to make progress in my recovery.
17. I ask my treatment peers for their advice on Facebook that I am too embarrassed to ask in person.
18. Looking at my treatment peers' Facebook pages has spurred me to take positive steps to further my recovery.

Note. Items are rated on a 1–7 scale with the following anchors: *strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree*, and *strongly agree*, and item responses are summed to create subscale scores.

Table 2

Means and Standard Deviations for Treatment History, Relationships and Comparisons to Peers from Treatment, and Eating Disorder Psychopathology (N = 415)

	Mean (*SD*)
Number of Separate Times in Treatment (Total)	8.24 (9.24)
Number of Separate Times in Inpatient Treatment	2.50 (3.42)
Number of Separate Times in Residential Treatment	1.35 (1.78)
Number of Separate Times in Day or Partial Hospitalization Treatment	1.98 (2.14)
Number of Separate Times in Intensive Outpatient Treatment	1.85 (1.77)
Number of Separate Times in Outpatient Therapy Group Treatment	2.43 (7.08)
Overall Length of Time in Treatment (Weeks)	66.72 (53.41)
Length of Most Recent Treatment (Weeks)	44.17 (39.81)
Time Since Most Recent Treatment	5.70 (2.70)[a]
Relationships and Comparisons to Treatment Peers Subscale Scores[b]	
Relationships to and Identification with Treatment Peers	22.67 (7.97)
General Comparison to Treatment Peers	14.22 (5.57)
Negative Comparisons to Treatment Peers on Facebook	24.74 (10.57)
Positive Interaction With Treatment Peers on Facebook	16.82 (5.53)
Eating Disorder Psychopathology[c]	
EDE-Q Global	3.04 (1.41)
EDE-Q – Restraint	2.72 (1.93)
EDE-Q – Eating Concern	2.61 (1.65)
EDE-Q – Shape Concern	3.60 (1.30)
EDE-Q – Weight Concern	3.22 (1.34)
CIA Total	25.00 (14.22)

Note. EDE-Q = Eating Disorder Examination-Questionnaire. CIA = Clinical Impairment Assessment.

[a] Rated on 1–10 scale with 5 corresponding to 18–24 months ago and 6 corresponding to 2–3 years ago.

[b] Possible ranges: Relationships to and Identification with Treatment Peers: 5–35; General Comparison to Treatment Peers: 3–21; Negative Comparison to Treatment Peers on Facebook: 6–42; Positive Interaction with Treatment Peers on Facebook: 4–28.

[c] Possible ranges: EDE-Q Global and subscale Scores: 0–6; CIA: 0–64.

Table 3

Regression Analyses of the Relationships and Comparisons to Treatment Peers Subscale Scores Predicting EDE-Q and CIA Scores (N = 415)

	B	SE B	β	t	p
Dependent variable = EDE-Q Global, overall $F(4, 397) = 80.13$, $p < .001$, $R^2 = .45$					
Predictors					
Relationships to and Identification with Treatment Peers	.02	.01	.12	2.53	.012
General Comparison to Treatment Peers	.13	.01	.51	8.85	<.001
Negative Comparison to Treatment Peers on Facebook	.02	.01	.17	2.93	.004
Positive Interactions with Treatment Peers on Facebook	−.02	.01	−.09	−1.99	.047
Dependent variable = EDE-Q Restraint, overall $F(4, 398) = 51.38$, $p < .001$, $R^2 = .34$					
Predictors					
Relationships to and Identification with Treatment Peers	.00	.01	.01	.15	.878
General Comparison to Treatment Peers	.15	.02	.45	7.14	<.001
Negative Comparison to Treatment Peers on Facebook	.03	.01	.18	2.88	.004
Positive Interactions with Treatment Peers on Facebook	−.02	.02	−.07	−1.36	.175
Dependent variable = EDE-Q Eating Concern, overall $F(4, 399) = 48.57$, $p < .001$, $R^2 = .33$					
Predictors					
Relationships to and Identification with Treatment Peers	.03	.01	.12	2.39	.017
General Comparison to Treatment Peers	.13	.02	.44	6.97	<.001
Negative Comparison to Treatment Peers on Facebook	.02	.01	.12	1.83	.068
Positive Interactions with Treatment Peers on Facebook	−.01	.02	−.05	−.93	.353
Dependent variable = EDE-Q Shape Concern, overall $F(4, 397) = 75.72$, $p < .001$, $R^2 = .43$					
Predictors					
Relationships to and Identification with Treatment Peers	.03	.01	.17	3.65	<.001
General Comparison to Treatment Peers	.11	.01	.47	8.10	<.001
Negative Comparison to Treatment Peers on Facebook	.02	.01	.17	2.94	.003
Positive Interactions with Treatment Peers on Facebook	−.02	.01	−.10	−2.20	.028
Dependent variable = EDE-Q Weight Concern, overall $F(4, 399) = 61.36$, $p < .001$, $R^2 = .38$					
Predictors					

	B	SE B	β	t	p
Relationships to and Identification with Treatment Peers	.03	.01	.15	2.99	.003
General Comparison to Treatment Peers	.12	.02	.48	8.01	<.001
Negative Comparison to Treatment Peers on Facebook	.02	.01	.12	2.01	.045
Positive Interactions with Treatment Peers on Facebook	−.03	.01	−.11	−2.18	.030
Dependent variable = CIA Total, overall $F(4, 393) = 54.19$, $p < .001$, $R^2 = .36$					
Predictors					
Relationships to and Identification with Treatment Peers	.36	.09	.20	4.03	<.001
General Comparison to Treatment Peers	.98	.16	.38	6.17	<.001
Negative Comparison to Treatment Peers on Facebook	.21	.08	.15	2.44	.015
Positive Interactions with Treatment Peers on Facebook	−.08	.13	−.03	−.62	.535

Note. EDE-Q = Eating Disorder Examination-Questionnaire. CIA = Clinical Impairment Assessment.

Table 4

Correlations Between Treatment History Variables and Overall Eating Disorder Community Facebook Usage ($N = 415$)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Overall Length of Time Individuals Spent in Inpatient, Residential, Partial, IOP, and Outpatient Group Therapy	–											
2. Overall Number of Treatments	.49***	–										
3. Length of Most Recent Treatment	.50***	.10*	–									
4. Time Since Last Treatment	−.03	−.01	.06	–								
5. Number of Facebook Friends from Treatment	.24***	.21***	−.04	−.25***	–							
6. Number of Facebook Friends from the Broader Eating Disorder Community	.13*	.10*	.04	−.04	.36***	–						
7. Time Spent Looking at Photos of Facebook Friends from the Broader Eating Disorder Community	.02	.01	.08	−.17**	.18***	.22***	–					
8. Time Spent Looking at Wall Posts of Facebook Friends from the Broader Eating Disorder Community	.07	.09	.07	−.14**	.14**	.29***	.64***	–				
9. Time Spent Communicating with (Messaging/Writing on Walls) with Facebook Friends from the Broader Eating Disorder Community	.03	.04	.02	−.08	.26***	.38***	.30***	.39***	–			
10. Number of Facebook Eating Disorder Group/Pages Memberships	.07	.03	.05	−.06	.16**	.36***	.10*	.19***	.18***	–		
11. Time Spent Per Day Viewing these Groups/Pages	.01	−.03	.03	−.11*	.04	.11*	.21***	.41***	.35***	.19***	–	
12. Times per Week Posting in these Groups/Pages	.16***	.09	.09	−.03	.04	.13**	.14**	.34***	.33***	.14**	.38***	–

Note.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

Table 5

Correlations Between Eating Disorder Community Facebook Usage Measures and Relationships and Comparisons to Treatment Peers Subscale scores (N = 415)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Number of Facebook Friends from Treatment	–											
2. Number of Facebook Friends from the Broader Eating Disorder Community	.36***	–										
3. Time Spent Looking at Photos of Facebook Friends from the Broader Eating Disorder Community	.18***	.22***	–									
4. Time Spent Looking at Wall Posts of Facebook Friends from the Broader Eating Disorder Community	.14**	.29***	.64***	–								
5. Time Spent Communicating with (Messaging/Writing on Walls) with Facebook Friends from the Broader Eating Disorder Community	.26***	.38***	.30***	.39***	–							
6. Number of Facebook Eating Disorder Group/Pages Memberships	.16**	.36***	.10*	.19***	.18***	–						
7. Time Spent Per Day Viewing these Groups/Pages	.04	.11*	.21***	.41***	.35***	.19***	–					
8. Times per Week Posting in these Groups/Pages	.04	.13**	.14**	.34***	.33***	.14**	.38***	–				
9. Relationships to and Identification with Treatment Peers	.28***	.23***	.24***	.27***	.23***	.13*	.21***	.15**	–			
10. General Comparison to Treatment Peers	−.02	.00	.22***	.21***	.05	−.03	.14**	.05	.35***	–		
11. Negative Comparison to Treatment Peers on Facebook	.11*	.05	.30***	.23***	.10	−.01	.16**	.03	.33***	.75***	–	
12. Positive Interaction With Treatment Peers on Facebook subscale	.32***	.29***	.21***	.27***	.27***	.09	.27***	.19***	.53***	.19***	.31***	–

Note.

*** $p < .001$.

** $p < .01$.

* $p < .05$.