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## **Adaptive and Maladaptive Means of Using Facebook: A Qualitative Pilot Study to Inform Suggestions for Development of a Future Intervention for Depression**

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### **Abstract**

Existing literature examining the relation between social networking sites and mental health is primarily based on correlational methods and presents mixed findings. Many researchers neglect to examine the cognitive and behavioral processes used while online. This study's qualitative approach strives to understand how individuals with elevated depressive symptoms may use Facebook following an interpersonal stressor. Participants' narration of their Facebook use was coded. Common adaptive uses included using Facebook to seek social support, actively communicate, distract, recall positive memories, and reappraise negative thoughts. Maladaptive uses included engaging in social comparison, ruminating, and recalling negative memories. Feedback regarding development of a future intervention was also elicited. Suggestions included using Facebook to view positive, interesting, or meaningful information, distract, garner social support, and engage in social activities. Findings indicate that how one engages with Facebook after an interpersonal stressor may affect adjustment and may help to inform the development of a novel, Facebook-based intervention.

### **Keywords**

social media; Facebook; depression; qualitative; emotion regulation

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## INTRODUCTION

Social networking sites (SNS) provide a vast amount of rich and readily available information. Approximately 67% of the United States population reports currently having an active Facebook account, the most popular SNS in the United States.<sup>1</sup> Facebook is the second most visited website both worldwide and in the United States.<sup>2</sup> Further increasing its ubiquity, 1.31 billion users worldwide report using Facebook on their mobile devices.<sup>3</sup> The Facebook website provides continuously accessible information from one's social network without ever having to leave home. While most recent research has focused on the effects of Facebook on mental health, little is known about using Facebook as a means of treatment-delivery.

### Social Networking Sites and Mental Health

SNS possess a number of unique characteristics, which may have positive or negative implications for mental health outcomes, depending on how they are used or how the material that is viewed is interpreted by the user. First, they are easily accessible through computers and mobile devices, allowing continuous, real-time access to an individual's social network, and thus, they have the potential to have an impact on momentary affect. Second, having access to multimedia material, such as photos and videos, can amplify the emotional effects of viewed material.<sup>4,5</sup> Third, the inherently social nature of SNS may draw upon psychological motivators for continued use, such as the inherent need to belong and the need for self-expression.<sup>6</sup> In fact, some studies suggest that Facebook use can evoke a psychophysiological state characterized by high positivity and arousal, similar to "flow," which may motivate use.<sup>7</sup> Fourth, SNS allow asynchronous and potentially anonymous (ie, when interacting with those unknown to the user offline) interactions. These factors may reduce social barriers and permit users to be more purposeful in their posts. As such, this may increase the ease of cyberbullying/harassment and allow for increased attention to and management of one's online persona, and social comparison.<sup>8</sup> Finally, one of the most commonly cited reasons for using SNS is social surveillance. Thus, users typically endorse passively observing rather than actively posting information. In turn, how one processes and makes sense of material viewed on SNS may be important to mental health outcomes.<sup>9</sup>

### Importance of the Type of SNS Use on Mental Health Outcomes

Although much attention has been focused on the role of SNS in mental health, the currently available literature is mixed regarding exactly how SNS impact mental health. Some research suggests beneficial effects, such as increased connection with others<sup>10</sup> and decreased depression,<sup>11</sup> whereas other research has identified negative consequences, such as reduction of face-to-face socialization,<sup>12</sup> cyberbullying, and an increase in depressive symptoms.<sup>13</sup> One explanation for these discrepant findings may be variations in how individuals use and process information viewed on SNS. For instance, Locatelli and colleagues<sup>14</sup> examined the differential effects of Facebook use, specifically status updates, on subjective well-being. They found that the *tendency to ruminate* in itself mediated the impact of status updates on subjective well-being more strongly than did the actual content of the updates. In addition, Davila et al.<sup>15</sup> found that the quality of Facebook interactions (ie, positive or negative) rather than quantity was associated with depressive symptoms. As

such, the tendency to focus on negative social comparison while using Facebook predicted rumination in participants, which in turn was associated with increases in depressive symptoms. Conversely, SNS can also have positive effects depending on how they are used. For instance, Gentile and colleagues<sup>16</sup> found that participants asked to examine their own social networking profile subsequently endorsed having higher self-esteem than those who did not.

Taken together, the unique characteristics of SNS, particularly their prevalence in users' lives, suggest that they may play an important role in amplifying both positive and negative emotional responses and outcomes. Although they may lead to positive consequences, such as increased intimacy within an individual's social network and increased social support, they can also provide opportunities for social comparison and negative interpretation, particularly for individuals suffering from depression. In particular, the lack of context and clarification regarding ambiguous information may result in increased negative interpretations, specifically for depressed individuals prone to negative cognitive biases.<sup>17</sup> Given the critical role that SNS may play in this regard, they also present a potentially important medium through which to intervene for those with emotion regulation difficulties or negative cognitive biases.

### **Description of the Study**

In the study described here, we employed a mixed methods approach to better understand various types of SNS use, gathering information that could potentially be applied to innovative treatments in the future. To do so, we recruited individuals with elevated depressive symptoms following an interpersonal stressor. Our primary study objective was to examine adaptive and maladaptive ways of using Facebook, with our secondary goal being to explore potential ways in which Facebook could be utilized in an intervention for depression. Given the preliminary nature of this study, secondary goals included examining the feasibility of recruiting the target population (ie, individuals with elevated depressive symptoms who use Facebook) and evaluating the level of interest in an SNS-based intervention for this specific population. We gathered data by (1) instructing participants to narrate aloud their behaviors and related thoughts while freely using Facebook and (2) asking them to provide explicit suggestions about what might make a Facebook-based intervention helpful and easy to apply in everyday life. While we are currently not aware of any SNS interventions to date that target depressive symptoms, we believe that an SNS-based intervention could provide a unique opportunity to reach depressed individuals and intervene during critical moments of their daily lives. Thus, the goal of this introductory study was to learn more about potential adaptive and maladaptive uses of Facebook so that that information could be applied to the development of an SNS-based intervention for depression.

Although this was an exploratory study, we hypothesized that the various ways in which people use and process SNS material would have different effects following such a stressor. For instance, SNS might provide cues and reminders of the event that one may not have otherwise had access to, leading to increased rumination and prolonged negative affect. Alternatively, using SNS as a tool for distraction or social support might have a positive

impact on adjustment to the stressor. Because Facebook is currently the most popular SNS in the United States, we chose to focus specifically on this site.

## METHODS

### Participants

Fifteen participants were recruited via web-based advertising (eg, Craigslist, relevant listservs). Eligibility criteria included (1) age 18 or older, (2) moderate Facebook use, as defined by logging onto Facebook at least once daily, (3) current depression, as defined by score on the Patient Health Questionnaire (PHQ-9) > 10 and score 2 on mood (#1) and/or anhedonia (#2) items, and (4) occurrence of an interpersonal stressor in the past 2 months. Participants were asked to rate the stressor according to how upsetting it is to them and how much it currently affects their mood (1=*not at all* to 4=*very upsetting/big influence*). A rating of 3 or 4 was required for both items to meet criteria for sufficient severity.

### Procedure

The Butler Hospital Institutional Review Board approved all study procedures. Participants deemed eligible after an initial brief phone screening were invited to participate in a one-time, in-person session lasting 1 hour. During this session, participants were rescreened for eligibility. Eligible participants answered brief questions about their current depressive symptoms, recent interpersonal stressor, current mood, and general Facebook use patterns. They were then instructed to use Facebook as they normally would for 10 minutes while narrating aloud their Facebook activity and related thoughts. Responses were audio-recorded and later transcribed and coded for analyses. Finally, participants were asked open-ended questions about the relationship between their mood and their patterns of using Facebook and for their suggestions for creating a Facebook-based intervention. Participants were compensated for their time.

### Measures

**Demographics**—Participants answered questions regarding age, sex, ethnicity, and marital status.

**Interpersonal stressor**—Participants were queried about the occurrence of a recent interpersonal stressor, using an abbreviated version of the Life Events Checklist.<sup>18</sup> After participants described the stressor, they were asked to indicate how long ago the stressor occurred, the nature of the stressor (*currently ongoing; ongoing, but currently not acute; isolated incident*), how upsetting the stressor is to them currently (1=*very upsetting* to 4=*not at all upsetting*), how much the stressor affects their mood currently (1=*big influence on my mood* to 4=*does not affect my mood at all*), how much they think about the stressor (1=*very often* to 5=*never*), if they are currently still in contact with the other person involved in the stressor (*in person only, through electronic means only, both in person and through electronic means, and not at all*), and if they currently have contact with the other person involved via Facebook, either directly or through mutual connections (*yes, no*).

**Patient Health Questionnaire (PHQ-9).**<sup>19</sup>—This self-report questionnaire was used to screen for, diagnose, and measure severity levels of depression. Scores  $\geq 10$  have a sensitivity of 88% and specificity of 88% for major depressive disorder, with a score of  $> 10$  representing a moderate level of depression.<sup>19</sup> Cronbach's alpha for this measure ranges from 0.86 to 0.89.<sup>19</sup>

### Facebook Measures

**Facebook Activity Measure (FAME)**—This self-report measure was developed by the first author,<sup>20</sup> from whom a copy of the measure can be requested. The FAME assesses general patterns of Facebook use, including use of Facebook through a mobile device, how often participants visit Facebook in comparison to other websites, and average frequency and duration of Facebook logins. Participants were also asked: “How big of a role does Facebook play in your social world?” (1=*very big part* to 5=*not at all*), and “When I'm feeling happy/sad, I log onto Facebook \_\_\_ than I usually do” (1=*much more often* to 5=*much less often*).

**Facebook Use**—Participants were instructed to use Facebook for 10 minutes while the experimenter left the room. They were asked to: “*Please use Facebook, just as you normally would when you are home by yourself. As you are using Facebook, I would like you to narrate aloud both what you are doing and what you are thinking. For instance, I would like you to describe things including whose profile pages you are visiting, what types of information you are viewing, and what you are doing. I would also like you to state what you are thinking about as you browse Facebook. Please do your best to describe as much of your activities and thoughts as possible out loud, and be as specific as you can.*” They were encouraged, when possible, to describe the impact of their Facebook activity on their subsequent mood. Examples were provided, and questions were addressed before beginning. All responses were audio-recorded for later transcription and coding.

**Recent Facebook Activity Checklist**—Following the in-session Facebook use, participants were provided with a brief, written checklist, called the Recent Facebook Activity Checklist. Developed for this study, this measure included 17 types of behaviors or thought processes one might potentially engage in while on Facebook. Of these, 8 items pertained specifically to ways of thinking about or dealing with their recent stressor. Participants also had the option of writing in their own category. After their Facebook use, they were asked to check off all items relevant to their recent login; thus providing them with the opportunity to identify and classify their own types of Facebook use. They were also asked to rate how they felt after the login (1=*much better than before I used Facebook*, 3=*the same*, 5=*much worse than before I used Facebook*). Finally, compliance was measured by asking, “During my recent Facebook login, I honestly described my Facebook activity or related thought processes aloud \_\_\_\_” (1=*all or almost all of the time*, 3=*about half of the time*, 5=*not at all or little of the time*).

**Interview Regarding Facebook Use and Mood**—At the end of the study session, participants were asked open-ended questions regarding the relationship between their mood state and Facebook use. Initial questions examined the effect of mood on the way

participants use Facebook by asking: 1) “How do you tend to use Facebook when you are in a negative mood?” and 2) “How do you tend to use Facebook when you are in a positive mood?” Next, the effects of Facebook use on subsequent mood were explored by asking, 3) “How does Facebook use hurt your mood?” and 4) “How does Facebook use help your mood?” Suggestions for creating an intervention for depressed individuals using Facebook as a medium were also elicited. Questions included: 1) “What suggestions do you have on what would make an intervention on Facebook useful or helpful?” 2) “What suggestions do you have on what would make an intervention on Facebook easy to use or apply during your everyday Facebook use?”

## Data Analysis

We used descriptive statistics to characterize the quantitative data that were collected. For the qualitative data, we used a template organizing style,<sup>21</sup> which entails coding a large volume of text using codes based on a coding manual or template. The initial template or coding manual was created by the first author (TT) based on earlier research and a preliminary scanning of the transcripts.<sup>22</sup> Based on recommendations by Miles and Huberman,<sup>22</sup> individual members of the research team (TT, CC) independently coded data to test for both inter-coder reliability and the utility and appropriateness of the codes. During the analysis process, the coding manual was iteratively modified and refined to best represent the data. Using a group process in a series of meetings, members of the research team (TT, CC, and MB) convened to review the categorized responses, make modifications, and discuss and resolve any discrepancies in coding. An inductive approach was used allowing new categories to emerge from the data. We examined categories using chunking, which entails examining sections of related text together. The group discussed the data until consensus on themes was reached and representative quotations from relevant categories were selected.

## RESULTS

### Descriptive Statistics

#### Demographics, Facebook Use (assessed by FAME), and Stressor

**Characteristics**—Baseline demographic and clinical characteristics are presented in Table 1.

Based on responses from the Facebook Activity Measure (FAME), all 15 participants reported that Facebook was the SNS they used the most: 10 indicated accessing Facebook through a mobile device, 8 of whom reported that at least 50% of their Facebook usage was via this device; 13 participants ranked Facebook as the website they most often visited on the Internet; 11 reported that they log on 5 times/day, and 13 reported spending 1 hour/day on Facebook; 13 reported that Facebook plays a large part in their social world and is “very important” in keeping in touch with friends. When feeling sad, 9 participants reported logging onto Facebook more often than usual, whereas 1 participant reported logging on less often, and 5 reported no change in frequency of logins when sad. When feeling happy, 4 participants reported logging onto Facebook more often than usual, 3



reported logging on less often, and 8 reported logging in about the same number of times. Characteristics of the participants' recent interpersonal stressors are described in Table 2.

### Qualitative Data Analysis

**Facebook uses**—We first examined responses from the Recent Facebook Activity Checklist, which provided a broad overview of common types of uses. Categorizations for *Type of Use* were based on (1) the emotion regulation and cognitive bias literature<sup>23–25</sup> and (2) participants' own accounts of the impact of these thoughts/behaviors on their mood during the in-session Facebook use. Items identified as maladaptive uses were drawn from items on the Ruminative Response Scale.<sup>26</sup>

Next, we analyzed behaviors and thought processes reported during the 10-minute, in-session Facebook use period based on transcribed accounts. This narrative account allowed a more naturalistic look into participants' Facebook activity. Qualitative responses were categorized broadly into: (1) adaptive, (2) maladaptive, and (3) neutral uses. These categories were based on previous research,<sup>23,24</sup> as well as the participants' own narration of how their Facebook use affected their mood in that moment. With regard to adaptive uses, categories included distraction ( $n=13$ ), seeking social support/active communication via posts, messages, or chat ( $n=15$ ), receiving validation or positive feedback ( $n=5$ ), downward social comparison ( $n=4$ ), and positive memory recall or being reminded of friends ( $n=7$ ). With regard to maladaptive uses, categories included upward social comparison ( $n=7$ ), rumination ( $n=8$ ), viewing negative material ( $n=7$ ), and reassurance/attention-seeking ( $n=1$ ). General and specific categories of maladaptive and adaptive uses and representative examples are outlined in Table 4. With regard to neutral uses, categories included types of passive observation ( $n=15$ ), such as examining one's newsfeed, or examining the profile of a friend, stranger, or oneself. Neutral active uses ( $n=5$ ) including changing one's profile picture, sharing or uploading a photo, and sharing or posting a status update or post. (Examples are not included in Table 4 due to their self-explanatory nature).

**Interview About Facebook Use and Mood**—The main purpose was to gather information concerning the relationship between Facebook use and mood, as well as potential ways of using Facebook to develop an intervention. Responses and representative examples are summarized in Table 5.

## DISCUSSION

### Key Findings

The primary goals of this study were to use a mixed methods approach to 1) examine how individuals interact with SNS, such as Facebook, 2) better understand the relationship between Facebook use and mood. A secondary goal of this study was to elicit ideas regarding the development of a SNS-based intervention for depression. Findings from this study suggest that we are able to recruit the desired population (ie, individuals with elevated depressive symptoms who use SNS) and that these individuals believe that such an intervention would be valuable if it incorporated helpful elements, such as positive, informative, or inspirational material for distraction, means of garnering social support, and

easy accessibility. Results are in line with other studies suggesting that Facebook is the most popular of the SNS in the United States<sup>2</sup> and plays an important role in users' everyday lives, particularly their social worlds. Using both a checklist and a qualitative approach allowed us to examine participants' awareness and classification of their own activity, as well as how researchers might understand their activity. These data could potentially be used to improve future measures of Facebook use, such as the FAME.

Common adaptive uses of Facebook included using it to distract and seek social support by actively communicating with one's network or seeking activities. Other adaptive ways of interacting with Facebook were perhaps less behavioral in nature and included engaging in adaptive cognitive or emotion regulation processes. These included receiving validation or positive feedback from others, engaging in downward social comparison, trying to think about Facebook material from a different perspective (ie, reappraisal), and being reminded of positive memories or one's social network. Most maladaptive uses encompassed ways of negatively processing Facebook material such as engaging in upward social comparison, ruminating, and viewing negative material/memories.

Results from the interview suggest that mood and Facebook use act in a reciprocal manner; one's mood state can influence how one interacts with Facebook and how one engages with Facebook can, in turn, have an impact on mood. Responses were mixed concerning the impact of mood on Facebook use. Some participants reported using Facebook more when in a negative mood, while others reported using it less. Similarly, others reported using Facebook more or less when in a positive mood, suggesting clear individual differences in how different individuals interact with Facebook when in different mood states. Examining how these differences may affect Facebook use in various mood states may be an important avenue for future research. For instance, individuals who are more likely to ruminate, engage in upward social comparison, and make negative biases in interpretation may also be likely to use Facebook more and in maladaptive ways when in a negative mood, thus perpetuating their mood state. Conversely, individuals who are more likely to engage in distraction or reappraisal may be more likely to use Facebook in a positive manner or engage in more adaptive offline activities, furthering their positive mood. To most effectively intervene, future research should better elucidate the relation between individual differences and Facebook use in different mood states and examine which individual vulnerability factors may be most likely to influence Facebook behavior.

Although there was variability in how individuals use Facebook, the respondents were more consistent in their suggestions for what would make a Facebook-based intervention helpful. They proposed several important suggestions, including using Facebook as a means for obtaining useful, positive, or distracting information, garnering social support, and increasing involvement in both on- and off-line social activities, and ensuring that the intervention is easy to use/apply in one's everyday life. These findings are important to consider, particularly in the context of depressed individuals whose Facebook interactions may serve to maintain their negative mood state (eg, those prone to negative cognitive biases and upward social comparison, high ruminators, low social support). Given the role of Facebook use throughout users' everyday lives and the critical role it can play in social interactions, it may present a valuable medium through which to intervene.



In the implementation of Facebook-based intervention, users may first undergo an assessment of maladaptive thoughts and behaviors they frequently engage in when on Facebook. Next, a plan for participating in more adaptive thoughts and behaviors will be created mapping onto these responses. For instance, individuals who endorse frequently engaging in upward social comparison and who find themselves negatively interpreting information they see may be prompted to cognitively restructure their negative thoughts. Those who often ruminate on an ex-partner or enemy's profile may be directed to focus more on positive pages. A personalized list of adaptive thoughts and behaviors, in addition to several generally beneficial behaviors (eg, actively communicate with 2 good friends each day on Facebook), could be compiled for each user in the form of audio or written files that could be easily accessed on Facebook. Helpful features may include developing a Facebook page with helpful resources, setting up push notifications to send reminders on one's mobile device, and creating Facebook groups for individuals to support and motivate each other. These are preliminary ideas about how to deliver such an intervention, but more work is needed to examine how to integrate intervention content with available technology to best optimize feasibility and effectiveness.

The development of a Facebook-based intervention for depression could have several important potential benefits. It has the potential to reach a wide range of depressed individuals who may not have access to or who are reluctant to seek regular care. This ease of access, privacy of at-home use, and familiarity with the site may increase the ease and level of comfort individuals might otherwise feel when using an intervention. These features may reduce barriers to treatment often noted in depressed populations such as stigma, lack of transportation, difficulty motivating oneself to make and attend appointments, and anxiety regarding in-person treatment.

The use of a Facebook-based intervention also presents a valuable opportunity to intervene in real-time by targeting users' thoughts and behaviors during critical time points (eg, online social interaction) rather than solely in the context of an in-person therapy session. Often the most effective therapeutic techniques require "homework" or practice in real-life challenging situations. Facebook's exposure to frequently updated information about one's social world provides numerous chances to practice therapeutic skills (eg, cognitive restructuring and emotion regulation skills) when encountering difficult online social interactions or viewing upsetting material throughout one's daily life. In particular, use of such an intervention on mobile devices would permit integration with the rest of a user's existence and present a unique way of intervening throughout daily life, with the potential to have a strong impact on emotional outcomes both on- and off-line. For instance, if an individual found himself engaging in negative thoughts each time he saw his ex-partner's status updates, each login would present a new opportunity to practice coping skills, such as distraction or reappraisal. Use of these techniques in the moment would allow for immediate changes in mood (potentially on- and off-line) and perhaps make it easier to draw on these skills in the future. Such an intervention could also be personalized, focusing on each user's self-expression, behaviors, and thoughts while using Facebook, thus increasing the personal relevance of the treatment.

## Limitations and Strengths of the Study

Findings from this study represent an important first step in better understanding the relationship between Facebook use and mood in individuals with elevated depressive symptoms, as well as the ways in which Facebook may be used to help alleviate mood symptoms for this population. These data should be interpreted in the context of the study's limitations, including the small sample size, the lack of a structured interview to confirm the diagnosis of major depressive disorder in study participants, the examination of only 1 social networking site (Facebook), limitations on the validity of self-report and self-narration, potential test taker bias given that participants were asked to complete screeners for depression prior to their participation, and limited information on immediate effects on mood to guide the classification of "adaptive" and "maladaptive" Facebook uses. Nevertheless, this study provides important information about what to look for when examining depressed individuals in a more naturalistic environment. Classifications of Facebook interactions were determined based on previous literature examining behaviors and thought processes believed to have a positive or negative impact on mood, primarily drawing on cognitive-behavioral and interpersonal theories of depression and the emotion regulation literature.<sup>23–25</sup>

This study also had a number of strengths, including a relatively diverse sample and the use of a mixed methods approach to more closely examine how individuals interact with the Facebook website in both passive and active ways. Allowing participants to freely use Facebook while collecting information about their thoughts and behaviors provided naturalistic information above and beyond the checklist that participants completed. By using an inductive approach, we were able to identify diverse uses of Facebook from the data, providing a more comprehensive list. In addition, the participants' narratives provided some insight into the impact of these interactions on subsequent thoughts and behaviors.

## Future Research Directions

We hope that our findings can contribute to the development of a Facebook-based intervention for depression, which should be tested in an open pilot study and then a randomized controlled trial. Given the small sample size in the current study, many of the findings and conclusions presented here are preliminary in nature. Although they represent an important starting point, it is critical to continue to examine the impact of various types of Facebook use in both experimental and more naturalistic settings to better understand the impact of this popular medium and how it can best be utilized as a medium for intervention. Future studies should explore the feasibility and acceptability of such an intervention for this population. Initial explorations might examine its use as an adjunctive component to in-person treatment, with the potential for development as a stand-alone intervention that could be personalized for each user.

Given the pilot nature of this study, we chose to recruit individuals with elevated mood symptoms following an interpersonal stressor given the strong interpersonal implications of SNS. This raises the interesting question of how various populations may differ in their use of SNS (eg, individuals with recurrent depressive episodes, single depressive episodes, and those demonstrating elevated depressive symptoms following a stressor but who do not meet

criteria for clinical depression). For future studies, researchers may wish to employ structured interviews, such as the Structured Interview for DSM Disorders (SCID-I), to examine these differentiations more closely. Future explorations would also benefit from using experimental methodology to capture the direct implications of specific types of use of SNS on immediate and longer term affect to more precisely determine characteristics of a safe and effective social networking interview for individuals with depression. Comprehensive mixed methods studies can be implemented to further examine issues specific to social media-based interventions, including users' views on ethics, privacy, and confidentiality. Finally, given our findings that different people use Facebook differently when in different mood states, future studies should strive to tease out these patterns. More specifically, it will be important to understand which individual differences impact *how much* and *in what way* individuals engage in Facebook use when in positive or negative mood states. Facebook is a powerful tool that should not be perceived as “good” or “bad,” but rather as an influential medium that individuals can use in adaptive or maladaptive ways.

## POTENTIAL CLINICAL IMPLICATIONS

Going forward, rather than measuring the effects of social media through quantity of use alone or assuming that use is positive or negative, it may be beneficial for clinicians to perform a more in-depth assessment of their patients' type of use. This may include evaluating the types of behaviors patients engage in online, how they process the information they view, and the function of their social media use and interactions. This information could allow clinicians to provide recommendations on how to interact with social media in a more adaptive manner. For instance, patients could be provided with recommendations on how to garner social support online or how to reframe negative thoughts when processing distressing information; thus reinforcing coping skills in their daily interactions. Targeting risk factors common in depression, such as cognitive biases and difficulties in emotion regulation, through a SNS-based intervention could present a unique opportunity to practice therapeutic techniques in social situations throughout one's daily life and have a positive impact on the emotional well-being of depressed individuals.

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**Table 1**

## Baseline Clinical and Demographic Variables

Variable	Mean (SD)	N (%) Total N = 15
Age	29.93 (9.69)	
Sex (female)		10 (66.7%)
Marital status		
Married		2 (13.3%)
Single, never married		10 (66.7%)
Divorced/separated		3 (20.0%)
Ethnicity		
Asian		1 (6.7%)
African American		5 (33.3%)
White/Caucasian		7 (46.7%)
Other		2 (13.3%)
Chose not to answer		1 (6.7%)
Latino/Hispanic		4 (26.7%)
PHQ-9	15.67 <sup>a</sup> (3.43)	
Mood change after in-session Facebook use <sup>b</sup>	2.40 (1.06)	
Compliance check <sup>c</sup>	1.33 (0.49)	

PHQ-9: Patient Health Questionnaire-9;

<sup>a</sup>“Moderately severe” depressive symptoms;

<sup>b</sup>Range of scores: 1 (*felt much better than before Facebook use*) to 5 (*felt much worse than before Facebook use*);

<sup>c</sup>Range of scores: 1 (*honestly described Facebook activity/thought processes aloud > 75% of the time*) to 5 (<25% of the time)

**Table 2**

## Characteristics of Interpersonal Stressors in the Sample

Variable	<i>Mean (SD)</i>	<i>N (%)</i> Total <i>N</i> = 15
Stressor type		
Relationship dissolution		8 (53.3%)
Significant fight		3 (20.0%)
Death of loved one		2 (13.3%)
Other interpersonal stressor		2 (13.3%)
Time since stressor		
Less than or equal to 1 wk ago		3 (20.0%)
8 to 14 days ago		1 (6.7%)
15 to 21 days ago		3 (20.0%)
22 to 28 days ago		1 (6.7%)
29 to 35 days ago		2 (13.3%)
Longer than 35 days ago		5 (33.3%)
Nature of stressor		
Currently ongoing		4 (26.7%)
Ongoing, but currently not acute		10 (66.7%)
Isolated incident		1 (6.7%)
How upsetting is the stressor currently?	1.27 (0.59) <sup>a</sup>	
How much does the stressor affect your mood currently?	1.27 (0.59) <sup>b</sup>	
How often do you think about the stressor?	1.20 (0.56) <sup>c</sup>	
Contact with other person involved in stressor		
No		4 (26.7%)
Yes, through electronic means only		4 (26.7%)
Yes, through electronic means and in-person		7 (46.7%)
Facebook contact with other person involved in stressor		
No		4 (26.7%)
Yes		11 (73.3%)

<sup>a</sup>Range of scores: 1 (*very upsetting*) to 4 (*not at all upsetting*);

<sup>b</sup>Range of scores: 1 (*big influence on my mood*) to 4 (*does not affect my mood at all*);

<sup>c</sup>Range of scores: 1 (*very often*) to 5 (*never*)



**Table 3**

## Activity During In-Session Facebook Use from Recent Facebook Activity Checklist

Type of Use	Specific Type	N (%)
<b>Total N = 15</b>		
Adaptive		
	Seek social support (eg, communicate with friends via wall posts, chat, messages)	12(80.0%)
	Distract, get my mind off the recent stressor	10(66.7%)
	Think about things from a different perspective	8(53.5%)
	Recall positive memories	7(46.7%)
	Find social activities to participate in (eg, look for events to attend)	5(33.3%)
	Think about the stressor in a way that helped me experience less negative emotion	5(33.3%)
	Think about the stressor in a way that made me stay calm	5(33.3%)
	Manage my emotions by changing the way I thought about the situation	5(33.3%)
	Compare myself to others to make myself feel better	4(26.7%)
	Try to motivate myself through spiritual inspiration	1(6.7%)
	Lift my mood by seeing how happy people are	1(6.7%)
Maladaptive		
	Think about how I feel and try to understand why I feel the way I do	8(53.5%)
	Compare my own mood to other people's perceived level of happiness on Facebook	7(46.7%)
	Think about how the recent stressor made/makes me feel	7(46.7%)
	Think about consequences of the recent stressor on my life	7(46.7%)
	Compare myself to others and think about my own shortcomings or faults	6(40.0%)
	Recall negative memories	4(26.7%)
	Think about what went wrong and what could have been different about the recent stressor	5(33.3%)
	Think about how sad, lonely, or angry the recent stressor made me feel	6(40.0%)

Categorizations for *Type of Use* were based on (1) the emotion regulation and cognitive bias literature (Gotlib and Hammen 2010,<sup>23</sup>; Gross 2013,<sup>24</sup> Nolen-Hoeksema et al 2008<sup>25</sup>) and (2) participants' own accounts of the impact of these thoughts/behaviors on their mood during the in-session Facebook use. Items identified as maladaptive uses were drawn from items on the Ruminative Response Scale.<sup>26</sup>

**Table 4**  
Qualitative Data Regarding Adaptive and Maladaptive Facebook Uses Based on Transcriptions

Use Type	Specific Use	Examples of Adaptive Facebook Uses
Distraction	Examine positive material (to get mind off stressor)	<ul style="list-style-type: none"> <li>• "I'm going to go to one of my favorite bands because I can't wait to see what they're doing... I feel excited, I feel like this could be something really good... I love their music... they always make me happy listening to them."</li> <li>• "I love this stuff... it makes me laugh... it's a little cat holding balloons."</li> <li>• "Being on Facebook right now is taking my mind off the things with my boyfriend. I'm still thinking about it but I'm feeling a little less upset just from my mind being occupied and looking at the pictures."</li> <li>• "My friend just posted something that I think is really nice... It says, it has a lady jumping with joy... walking toward the sunshine... toward a beautiful, sunny field, and it says, 'I will no longer allow the negative things in my life to spoil all of the good things I have. I choose to be happy.' Oh, I like that."</li> <li>• "I liked a lot of news and article things. Usually that leads me into reading an article about something, which is kind of nice because then I feel informed and aware."</li> </ul>
	Examine informative material	<ul style="list-style-type: none"> <li>• "I'm going to post a little status update of my own which is about the beautiful weather that we're having and how happy it makes everybody, and again, 2 smiley faces... posting that."</li> </ul>
Social support	Post positive material	<ul style="list-style-type: none"> <li>• "Realized that it wasn't the girl's birthday yesterday but it is actually today so that makes me happy. I'm on time so I'm going to leave a comment on her wall... she's in a club with me so I'm writing a comment about that club... for some reason, this is making me really happy."</li> <li>• "My little brother posted something for me, uh, from sister's week. It says, 'Your sister is your first female friend in life. No one will ever understand your craziness like your sister. Even if you don't get together or talk as much as you'd like, she always remains your friend. People come and go in your life. Your sister will always be in your heart for a lifetime. It's National Sisters Week so share if you have a sister who you love with all your heart.' Aww... that makes me very happy. I'm going to comment to my little brother. I'm going to say, 'Thank you so much. I needed this photo and it did make me smile and feel better for the moment.' And that I love him."</li> </ul>
	Obtain new Facebook friend	<ul style="list-style-type: none"> <li>• "I have a friend request... someone who is the head of the house that I'm going to be living in at school so I'm confirming that friend request... that makes me feel good 'cause it's a connection with someone I just made."</li> </ul>
Receive positive feedback	Seeing that people "like" one's post	<ul style="list-style-type: none"> <li>• "I just got a job today so I put that as a status update, and a bunch of my friends liked it so that makes me feel good that people care about that."</li> </ul>
Downward social comparison	Compare self to others to feel better	<ul style="list-style-type: none"> <li>• "I don't really know her so I'm going to go ahead and look through her photos. Um, she's not that pretty so that kind of makes me feel better."</li> </ul>
Positive memory recall/ Reminder of friends	Recall positive memories/remember friends; See others doing well	<ul style="list-style-type: none"> <li>• "I'm just gonna write lots of laughing smileys... yeah this reminds me of how we really have lots of fun together usually... I don't see this friend a lot but she is a very good friend and... this reminds me of how much we have in common in terms of sense of humor and the kinds of things we like... and that is very enjoyable."</li> <li>• "This is making me really happy... seeing the faces of all of these people who I get along with really well or really close friends... I really enjoy [using Facebook] because it reminds me of, you know, people who I don't see</li> </ul>

			<p>very often and who I can stay in touch with and that is just a nice thing to have... sometimes there's this warm fuzzy feeling associated very often and who I can stay in touch with and that is just a nice thing to have... sometimes there's this warm fuzzy feeling associated</p> <ul style="list-style-type: none"> <li>• "When I see pictures or something posted by my close friends, that makes me happy they're enjoying something."</li> <li>• Examples of Maladaptive Facebook Uses</li> <li>• "I'm not very happy so when I enter Facebook, I check profiles of the people who I think have nicer and happier lives... when I'm not doing quite well and I see other people quite happy, it makes me feel worse, but I keep checking."</li> <li>• "I see a message from a friend of mine from school... she just graduated, she got her bachelor's and she's planning on getting her master's and I'm thinking, my gosh, she's so young, by the time I get out of college, my hair will be totally grey or I'll be totally bald... I'm happy for her because she achieved her dream and at least she's young enough to see the fruits of her labor..."</li> <li>• "She posted a picture, it says, 'Dear mom, one day I'll make you proud, I promise.' And I don't like that because I didn't have a relationship with my mother so it annoys me."</li> <li>• "I get upset every time I get on Facebook because everybody's posting all the fun stuff that they do on, like during the summer, and I haven't done anything fun this stupid summer because I had all these plans, all this great stuff I was going to do with my ex-boyfriend and then he broke up with me and now I get to see all the photos of him doing it without me... his profile picture is a picture of him at his parent's beach house and I'm sitting at home."</li> <li>• "It's stupid because I know that we're doing all the same things, we're just doing them separately instead of together... he still wants to hang out and talk all the time, but he doesn't want to be together. I don't understand."</li> <li>• "It sends me a notification every time my ex-boyfriend updates his status so I'm clicking on it... It kind of makes it hard to not think about everything when you see his name come up on here... if I were like to go on his page and look at pictures of us, which I don't want to do, that would definitely make me sad... but I don't want to stalk him because Facebook is so easy to stalk people on. I kinda hate that. It becomes like an obsession."</li> <li>• "The other day, he posted a status that said, 'Hello single life, it's been a while.' And that made me feel like shit because that sounds like he's glad that we're not together anymore and that makes me feel really upset."</li> <li>• "I'm deleting the last status update I made yesterday where I was complaining about how I'm having the worst summer ever and now I'm realizing I look like an idiot so now I'm deleting it."</li> <li>• "I got people that [are] poking me... I really hate it when people do that because it's irritating as crap."</li> <li>• "Couple of people that I hate to see on Facebook. That they get me depressed when they do something like showing some negative pictures and talking about some negative stuff..."</li> <li>• "Someone that I'm friends with on Facebook but don't really know in person posted all this memorial stuff about her dad dying. It's really sad."</li> <li>• "Facebook sucks because I feel like we wouldn't talk if it weren't for Facebook, and I wouldn't know what was going on in his [ex-boyfriend] life if it weren't for Facebook, and I feel like half the posts I make on Facebook are to get his attention. I feel like I just make like weird attention-getting posts all the time."</li> </ul>
Use Type	Specific Use		
Upward social comparison	Compare self to others' situation and feel worse		
Rumination	Think about causes and consequences of recent stressor; Try to understand stressor		
	Increased awareness of online identity		
Viewing negative material	View material that increases negative affect (eg, sadness, irritation)		
Reassurance/attention-seeking	Post to get attention		

**Table 5**  
Qualitative Data Regarding Adaptive and Maladaptive Facebook Uses Based on Transcriptions

Category of use (n)	Examples of use
<b>Question 1:</b> How do you tend to use Facebook when you are in a <b>negative</b> mood?	
Using Facebook less (n=3)	<ul style="list-style-type: none"> <li>• "I tend to log on less often when I'm in a bad mood, I think.... cause I realize that there's not really much to do and I don't play games on Facebook."</li> <li>• "My attitude to the whole thing is very restrictive because I feel like I can't talk about it."</li> </ul>
Log on more/stay on Facebook for longer (n=6)	<ul style="list-style-type: none"> <li>• "My use of Facebook is more amplified when I'm feeling negatively... the way I use it reinforces negative feelings rather than mitigating them."</li> <li>• "When I'm upset, like I said, I'll constantly check it. I'll either type something or talk to somebody so I feel like I use it a lot more when I'm upset."</li> </ul>
Focus more on positive material and limit examination of negative material (n=3)	<ul style="list-style-type: none"> <li>• "I try to limit my viewing of people's pages that start drama... I try to go on funny stuff... because I don't want to see somebody's status that's going to make me feel worse than I already felt."</li> </ul>
Negatively interpret information or take things personally (n=4)	<ul style="list-style-type: none"> <li>• "When I'm down, it has more of an effect on my mood."</li> <li>• "When I'm not feeling good and others are well, it makes me feel worse."</li> <li>• "Sometimes you read something and instead of taking it in positively, you take it in negatively and it's because of your mood."</li> </ul>
Ruminate on viewed material	<ul style="list-style-type: none"> <li>• "It makes me feel worse... because after I log off Facebook, I still sit there and think about the problem."</li> </ul>
<b>Question 2:</b> How do you tend to use Facebook when you are in a <b>positive</b> mood?	
Use Facebook more and/or increased engagement in Facebook material (n=5)	<ul style="list-style-type: none"> <li>• "When I'm in a good mood, I post happy go lucky stuff."</li> <li>• "I put [up] something positive I like."</li> <li>• "Using Facebook makes me even happier because I can share what's funny or interesting."</li> <li>• "When I'm in a good mood... I'll sit there and look at what people are posting instead of just skimming through it or just not caring."</li> </ul>
Log onto Facebook less and/or decreased engagement in Facebook material (n=5)	<ul style="list-style-type: none"> <li>• "If I think I'm happy or in a good mood, I don't care as much about Facebook"</li> <li>• "If I'm happy or there's nothing really bothering me, I won't log on a lot"</li> <li>• "If it's a decent day for myself... I don't feel the urgency or the need to go on."</li> </ul>
<b>Question 3:</b> How does Facebook use <b>hurt</b> your mood?	
Have negative interactions (n=4)	<ul style="list-style-type: none"> <li>• "If I use Facebook when I'm upset and... no one's interested, then I feel even more disconnected."</li> </ul>

<p>Serve as reminder of social isolation (<i>n</i> =3)</p>	<ul style="list-style-type: none"> <li>• “If you see something that happened or something that your friends did that you weren’t involved in, that could make you feel left out.”</li> </ul>
<p>Provide cues for numination, reminder of negative memories (<i>n</i> =5)</p>	<ul style="list-style-type: none"> <li>• “It makes you think about things you wouldn’t normally think about... 10 years ago, if I went through a break-up, I wouldn’t know what my ex-boyfriend was doing every hour of every day, but... I know what he’s doing all the time... if you’re upset about something involving another person, you can go on and see all their posts and their pictures and obsess over it and it tends to make you feel worse.”</li> <li>• “Some things I may see that my boyfriend had posted can make me upset... having less contact with him, I overanalyze things.”</li> </ul>
<p>View negative, ignorant, or irritating information (<i>n</i>=4)</p>	<ul style="list-style-type: none"> <li>• “When I just see some ignorant people posting a lot of crap.”</li> <li>• “Derogatory pictures of something or pictures of not good taste.”</li> </ul>
<p>Engage in negative social comparison (<i>n</i>=3)</p>	<ul style="list-style-type: none"> <li>• “I think one of the evils of it is that you often compare yourself to other people and that can only usually make you feel bad... and that’s not hard to do.”</li> <li>• “Just when you see people having so much fun or are on vacation and you’re not... it makes me in a sad mood or upset.”</li> </ul>
<p><b>Question 4:</b> How does Facebook use <b>help</b> your mood? What suggestions do you have on what would make an intervention on Facebook <b>easy</b> to use or apply during your everyday Facebook use?</p>	
<p>Distraction (<i>n</i>=13)</p>	<ul style="list-style-type: none"> <li>• View positive, funny, or inspirational material</li> <li>• Use to stay up-to-date with information</li> <li>• View concrete information regarding how to improve mood</li> <li>• Direct individuals to avoid negative information and limit interactions to only “positive” people</li> <li>• Use Facebook-embedded games or activities</li> </ul>
<p>Social support (<i>n</i>=14)</p>	<ul style="list-style-type: none"> <li>• Create support groups to allow sharing of information (eg, coping skills, available resources)</li> <li>• Use to increase awareness of offline social events</li> <li>• Encourage positive social interaction with one’s network</li> <li>• Use as forum to learn of others who have had similar experiences and how they have coped</li> <li>• Gamer encouragement and motivation from others to be active</li> <li>• See friends who are doing well</li> </ul>
<p>Easy accessibility (<i>n</i>=6)</p>	<ul style="list-style-type: none"> <li>• Make easy to access and to remember to use when logging into Facebook</li> <li>• Integrate mobile component</li> </ul>