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Facebook Use and Negative Body Image among U.S. College Women

ABSTRACT

Young women increasingly spend time with social media, but the relationship of this exposure to body image is still in the initial stages of exploration. This study used social comparison theory to examine the relationship between time spent on Facebook and body image. A survey of 881 U.S. college women was conducted in April-May 2013. Findings showed that 10.1% had posted about weight, body image, exercise or dieting, and 27.4% had commented on friends' posts or photos. More time on Facebook related to more frequent body and weight comparisons, more attention to the physical appearance of others, and more negative feelings about their bodies for all women. For women who wanted to lose weight, more time on Facebook also related to more disordered eating symptoms.

Keywords: social media, Facebook, body image, social comparison theory

## INTRODUCTION

Research suggests that thin-ideal media images negatively affect women's body image, eating behaviors and beliefs (e.g. Grabe, Ward and Hyde 2008). While the link between mass media and body image is well established, little is known about social media's relation to body image. Several studies have explored this topic with conflicting findings (e.g. Meier and Gray 2014; Rutledge, Gillmor and Gillen 2013). The purpose of this study was to examine the link between time spent on Facebook and body image and contribute to the emerging literature on the relationship between social media and the psychological well-being of young women.

## BACKGROUND

### Mass Media and Body Image

For decades, American young women have received a uniform message from the mass media that their bodies should be thin or thin with the right curves (Vandenbosch, Vervloessem and Eggermont 2013) and that appearance is valued more than health (Willis and Knobloch-Westerwick 2014). Such media messages have been consistently linked to concerns about body image (Grabe et al. 2008; Groesz, Levine and Murnen 2002). Grabe and colleagues (2008) concluded that "overall, thin-ideal media exposure is related to higher levels of body dissatisfaction, stronger internalization of the thin ideal, and more frequent bulimic and anorexic attitudes and behaviors" (p. 470). Body image issues also raise the risk for developing low self-esteem, depressive symptoms, and obesity (Grabe et al. 2008).

However, the relationship between media exposure and body image is not straightforward and is often moderated by additional variables. In terms of demographics, younger participants have been shown to experience more intense negative effects (Groesz et al. 2002;

Lopez-Guimera et al. 2010), as has being a woman (Egbert and Belcher 2012). In terms of physical attributes, weight has been related to stronger negative effects (Egbert and Belcher 2012). Psychological characteristics, such as the presence of “significant body issues” (Groesz et al. 2002), low self-esteem or low self-concept clarity (Egbert and Belcher 2012; Lopez-Guimera et al. 2010), have also increased vulnerability to negative media effects.

Women’s social surroundings have also played a role (Krcmar, Giles, and Helme 2008; Lopez-Guimera et al. 2010). Parents and peers moderated media effects on body dissatisfaction and were important in the transmission, reinforcement, and modeling of the thin ideal or disordered eating beliefs and behaviors; their social support could protect against adverse media effects (Lopez-Guimera et al. 2010). Interpersonal norms mediated the relationship between exposure to thin media messages and body satisfaction: When peers and parents valued the thin ideal, media images could be further reinforced (Krcmar et al. 2008). This is relevant to the current study because social media combines content from mass media, friends and family.

### Social Media and Body Image

Among 18-29-year-old Americans who were online, 87% used Facebook in 2014, with women dominating (Duggan et al. 2015). Facebook continued to be the dominant social media platform in the United States in 2014, although LinkedIn, Pinterest, Instagram and Twitter grew rapidly (Duggan et al. 2015). This widespread social media uptake has driven researchers to explore its social and psychological repercussions, including on body image.

Unrealistically thin images are prevalent in mass media, but may also exist on social media as users tend to select carefully the content they share (Goodings and Tucker 2014; McLaughlin and Vitak 2012; Siibak 2010). Some young men, for example, have tended to pose alone in their profile images to emphasize their looks and appear as willing romantic

objects (Siibak 2010). College women have untagged photos on Facebook, which they see as unfitting to Western beauty ideologies (McLaughlin and Vitak 2012), while a female university student has described her conscious construction of an image on social media (Goodings and Tucker 2014).

Hence, some authors have argued that Facebook may reinforce an “ideal self,” which misrepresents the individual (Gonzales and Hancock 2011). The above relates to social comparison theory (SCT), which posits that people are often driven to evaluate their opinions and abilities by comparing them to others (Knobloch-Westerwick and Romero 2011) because most attitudes, opinions and abilities cannot be verified by non-social and objective methods (Goodman 2005). This applies to thinness and attractiveness, which are very subjective. Social comparison has been shown to mediate the effects of thin images on college women. The very amount of comparison can contribute to negative effects on mood and body image (Tiggemann and McGill 2004) and serve as a mediating variable for body dissatisfaction and drive for thinness and an indirect link to eating disorders (Goodman 2005).

Comparisons could be upward, downward or lateral. When a woman compares herself to someone who is rated higher on an attribute, then this comparison would be upward, while measuring herself to someone who scores lower would involve a downward comparison. A lateral comparison is one in which both individuals are on the same level for the chosen attribute or ability. Women may be expecting downward or lateral comparisons on Facebook due to the presence of similar others, but may actually engage in upward comparisons due to the presence of idealized images online. Indeed, college women made upward appearance comparisons to close friends, distant peers and celebrities, which have mediated the relationship between Facebook usage and body image concerns (Fardouly and Vartanian 2015).

Upward comparisons have typically resulted in negative body image, drive for thinness, eating disordered behaviors (e.g. Krcmar et al. 2008) and overall less positive evaluation of oneself (Zell and Balciotis 2012) due to the discrepancy between real women and the thin ideal portrayed in the media. But the effects of upward comparisons vary depending on attainability. When the ideal body was presented as more attainable, exposure resulted in self-enhancement and inspiration, while when the image seemed unattainable, exposure produced self-deflation (Knobloch-Westerwick and Romero 2011). Further, perception of attainability made ideal body images less threatening for users who were dissatisfied with their bodies (Knobloch-Westerwick and Romero 2011). Downward comparison, on the other hand, has elicited greater satisfaction and self-confidence compared to upward one and controls (van den Berg and Thompson 2007).

Negative exchange about the body among peers is known as fat talk and offline 93% of college women having engaged in it (Salk and Engeln-Maddox 2011). Although past research has pointed to the existence of primarily positive content on social media, some body-related negativity has been found. One study found that weight concerns were shared by only 6.4% of the students on Facebook, but women were 3.5 times as likely to author them (Kolpa and Moreno 2011). Users who received extremely negative comments on updates about their personal lives were more likely to report concerns about their eating, shape, and weight (Hummel and Smith 2015). This suggests that while body-related negative talk may be rare on social media, even general negative comments may adversely affect body image.

Several studies have explored the relationship between Facebook use and body image. More time on Facebook related to more internalization, drive for thinness, body surveillance, and less weight satisfaction among Australian adolescent girls (Tiggemann and Miller 2010; Tiggemann and Slater 2013). American adolescent girls showed similar effects from photo-related activity (Meier and Gray 2014). Studies on college women, however, have conflicting

results. Rutledge and colleagues (2013) found no link between Facebook use and negative body image, and users with more friends perceived their appearance more positively, but two recent studies showed the opposite results. Fardouly and Vartanian (2015) reported a positive relationship between Facebook usage and body image concern, while Mabe, Forney and Keel (2014) found a positive correlation between duration of Facebook use and disordered eating.

The present study contributes to the growing body of knowledge about the relationship between Facebook use and body image among college women. We examined the broader concept of time spent on Facebook, which is a more comprehensive way to study the topic. Most activities on Facebook may affect body image, and focusing on only some limits unnecessarily the scope of exploration. For example, Meier and Gray (2014) demonstrated the effects of photo-related activity, while Hummel and Smith (2015) examined status updates and comments. By focusing on only one activity, these studies excluded others, which may also influence users. Thus, examining the larger concept of time spent on Facebook takes into account all activities at once and their potential joint influence. This approach is similar to the conceptualization of time spent with TV from cultivation theory, which is concerned with the overall length of exposure rather than individual programs (Signorielli and Morgan 2009).

Of the known studies focusing on college women and examining time on Facebook, Fardouly and Vartanian (2015) allowed participants a pre-determined amount (10 minutes) and measured post-exposure effects. Mabe et al. (2014) asked how much time participants spent per week via categories. Rutledge et al. (2013) asked about average minutes spent per day also via categories. Our own measurement was closest to Rutledge et al. (2013) as we asked respondents how much time overall they spent on a typical day, but unlike them, we posed an open-ended question, which resulted in ratio-level data.

## Theoretical Perspective

This study employed social comparison theory (SCT), which provides a popular theoretical framework for studies on body image (e.g. Knobloch-Westerwick and Romero 2011; Kremer et al. 2008; Tiggemann and McGill 2004). SCT posits that people tend to compare themselves to similar others, and Facebook gathers many similar others. The majority of Facebook users (91%) say they are connected with current friends, while 87% are connected with friends from the past and 58% with work colleagues (Duggan et al. 2015). Thus, by simply spending time on the website, a woman allows herself countless opportunities for comparison. Initial evidence has supported this idea. Adolescent girls who are Facebook users have scored higher on physical appearance comparisons compared to peers who are non-users (Meier and Gray 2014). The theory's tenets of upward, lateral and downward comparisons in the context of mass media and social media were discussed earlier.

Researchers have previously connected desire for weight change, also called weight discrepancy, with SCT (Arroyo 2014; Fardouly et al. 2015) and with body dissatisfaction and fat talk (Arroyo 2014). Arroyo linked desire for weight change to upward comparisons, but argued that those were two cognitively different processes: weight discrepancy compared the self to self, while upward comparisons involved the self and others. While agreeing with that, we see the processes as related, where upward comparisons to others may influence one's internal comparison.

## PURPOSE

This study adds further evidence about the relationship between time spent on Facebook and body image, as well as examined the extent to which women discuss body issues and partake in comparisons. Based on initial evidence that few women engage in negative body talk online (Kolpa and Moreno 2011) and on the large prevalence of fat talk offline (Salk and Engeln-Maddox 2011), we asked:



RQ1: How often do college women post about and discuss weight, body image, exercise or dieting on Facebook?

SCT posits that people tend to compare themselves to similar others, who are readily available on Facebook through friends or colleagues (Duggan et al. 2015). Scholars have already noted users' higher tendency to engage in physical appearance comparisons compared to non-users (Meier and Gray 2014). Therefore, we hypothesized:

H1: More time on Facebook would relate to more frequent body/weight comparisons, controlling for an eating disorder diagnosis and weight difference.

Paying attention to the physical appearance of others is a first step toward body comparison and can contribute to negative effects on mood and body image (Tiggemann and McGill 2004). Women's weight also plays a role, as higher weight has been related to body image concerns and drive for thinness (Egbert and Belcher 2012), and desire for weight change linked to upward comparisons, body dissatisfaction and fat talk (Arroyo 2014). Therefore, we hypothesized:

H2: Desire for weight change would moderate the relationship between time on Facebook and attention to physical appearance, such that women wanting to lose weight would pay more attention to the physical appearance of others, while women wanting to gain or maintain their weight would not pay as much attention, controlling for an eating disorder diagnosis and weight difference.

Evidence about the relationship between time on Facebook and body image has been conflicting (Fardouly and Vartanian 2015; Rutledge et al. 2013) but women's weight has been shown to moderate the effect of media images (Egbert and Belcher 2012) and desire for weight change has been related to body dissatisfaction (Arroyo 2014). Therefore:

H3: Desire for weight change would moderate the relationship between time on Facebook and body image, such that women wanting to lose weight would experience

more negative body attitudes and disordered eating symptoms compared to those who want to gain or maintain weight, controlling for an eating disorder diagnosis and weight difference.

## METHOD

### Participants and Procedure

Participants were college women at a large public U.S. Midwestern university. All women enrolled as students were eligible to participate. Recruitment was conducted via campus announcements, student organizations, and e-mail distribution lists in April—May, 2013. A total of 881 women participated, for a response rate of 37.5%. The university's Institutional Review Board approved the study methodology and research design prior to collecting data. Women filled out a cross-sectional online survey (via Qualtrics), which required about 15 minutes. They provided written informed consent before the start of the survey and were free to end it at any point. They were incentivized with a lottery for several \$25 gift cards.

### Measures

Survey measures included the following:

Facebook use. Respondents noted how much time they spend on Facebook on a typical day, how often they visited, and relative time share of each of the following activities: reading the newsfeed; checking friends' timelines; checking personal timeline; messaging friends; using apps/games; looking at photos; updating status/posting photos; other.

Weight and eating disorders. Women noted their current weight, ideal weight, history of an eating disorder diagnosis, and history of eating disorder treatment. A variable "weight difference" was created by subtracting current weight from ideal weight, so that negative numbers indicated wanting to lose weight and positive numbers indicated wanting to gain.

Discussing weight/body image/diet. Discussing body image/weight can occur through posting or commenting on others' posts/photos. We created an open-ended question: "How

often have you posted on your own Timeline about your own weight, body image, dieting, or weight loss in the past month?” Those who had done it were then asked: “What percentage of your posts on your own Timeline over the past month was about your own weight, body image, dieting, or weight loss?” Two similar questions asked about commenting on others’ posts/photos and the percentage of comments.

Comparing to others. We created the question: “While on Facebook, how often do you compare your own body or weight to those of your friends?” Answers were on a 7-point Likert scale, where 1 = never and 7 = all the time.

Attention to physical appearance. We created the question: “When looking at someone else’s photos on Facebook, how much attention do you pay to the following?” Answers “how they dress” and “their body” were measured on a 7-point scale anchored by 1 = no attention and 7 = very strong attention. Cronbach’s  $\alpha$  was 0.694.

Body image. The concept was assessed through three different measures. The cognitive aspect of body image was measured via the Body Shape Questionnaire (BSQ), which contains 34 questions, such as: “Have you felt that it is not fair that other women are thinner than you?” “When in company, have you worried about taking up too much room?” about the past four weeks (da Silva et al. 2014). Responses were on a six-point scale, from 1 = never to 6 = always. Cronbach’s  $\alpha$  was 0.976.

The behavioral aspect was assessed via the 26-item Eating Attitudes Test (EAT-26).<sup>©</sup> EAT-26<sup>©</sup> is very widely used to screen for disordered eating attitudes and behaviors, and has been extensively validated (Maiano et al. 2013). Cronbach’s  $\alpha$  was 0.882. We also created a direct question connecting Facebook use and body image: “How often has looking at someone else’s Facebook photos and posts made you feel negatively about your body in the past month?” Responses were on a 7-point Likert scale, from 1 = never to 7 = very often.

Statistical analysis

Descriptive statistics (mean, SD, frequency) were calculated for all variables. Correlational analyses were performed on continuous variables. The BSQ and EAT-26<sup>©</sup> scales were checked for internal consistency using Cronbach's  $\alpha$ . Hierarchical linear regressions and hierarchical multiple regressions testing for moderation were used to test hypotheses. The PROCESS add-on for SPSS by Andrew Hayes was used for these analyses. The confounding variables were included in the model for H1 due to their significant ( $p \leq 0.05$ ) correlations with the main variables of interest. Eating disorder diagnosis was correlated with BSQ scores ( $r = 0.16, p < 0.01$ ), EAT-26<sup>©</sup> ( $r = 0.218, p < 0.01$ ), comparing to others ( $r = -0.115, p < 0.01$ ), feeling negative after viewing photos/posts ( $r = -0.081, p = 0.05$ ). Weight difference was correlated with BSQ scores ( $r = -0.401, p < 0.01$ ), EAT-26<sup>©</sup> ( $r = -0.192, p < 0.01$ ), comparing self to others ( $r = 0.006, p = 0.053$ ), attention to physical appearance ( $r = -0.004, p = 0.02$ ), feeling negative after photos/posts ( $r = 0.013, p < 0.01$ ). Model fit was assessed using  $R^2$ . All analyses were performed using SPSS Statistics 21.

## RESULTS

### Demographic characteristics

Most participants were undergraduate students (77%,  $n = 678$ ) and Caucasian (87.4%,  $n = 770$ ) (Table 1). Their mean age was 23.83 years ( $SD = 7.26$ ; range: 18–60 years). To determine if age affected the results, z-scores for age were calculated. All analyses were conducted with those who had a z-score of 1.96 or greater removed. Results were comparable to those including all respondents. Therefore, age was excluded from further analysis.

Mean current weight was 149.64 pounds ( $SD = 37.94, N = 879$ ) and mean ideal weight was 130.65 pounds ( $SD = 19.20, N = 873$ ) (Table 2). The mean difference in weight was -19.10 pounds ( $SD = 25.77, N = 870$ ). The weight difference variable was split into three categories: lose weight, gain weight, stay the same. Most (86%) wanted to lose weight.

## Facebook Use

Respondents visited Facebook almost daily (Mean = 6.10, SD = 1.61 times per day, N = 879) and spent 79 minutes per day there on average (SD = 78.98, N = 881) (Table 3).

Reading the newsfeed was the most popular activity, taking up close to half of a typical visit (Mean = 45.77%, SD = 26.10, N = 882). Looking at photos was the second most popular activity with 16.86% of a typical visit dedicated to it (SD = 15.65, N = 881).

Messaging/chatting took 10.25% of a typical visit (SD = 14.88, N = 879) and was the third most popular activity.

## Research Questions and Hypotheses

We asked how often women discussed weight, body image, exercise or dieting on Facebook. Only 10.1% (n = 87) had posted on their Timeline in the past month, and 8.51% of their posts on average were about these topics. Another 27.4% (n = 238) of participants had commented on friends' posts/photos on these topics (Mean = 3.5 times, SD = 3.5).

When testing H1 (more time on Facebook would be related to more frequent body/weight comparisons, controlling for eating disorder diagnoses and weight difference), in a hierarchical linear regression, diagnosis of an eating disorder and weight difference were entered at level 1 and time on Facebook was entered at level 2, while frequency of comparing oneself to others was the criterion variable. Time spent on Facebook related to frequency of comparisons ( $\beta = 0.077$ ,  $t(860) = 2.257$ ,  $p = 0.024$ ) and accounted for a significant but small portion of the variance ( $R^2 = 0.027$ ,  $F(3,863) = 7.830$ ,  $p < 0.01$ ). Thus, H1 was supported.

When testing H2 (desire for weight change would moderate the relationship between time on Facebook and attention to physical appearance, with women wanting to lose weight paying more attention to the physical appearance of others, controlling for an eating disorder diagnosis and weight difference), to avoid potentially problematic high multicollinearity with

the interaction term, the variables were centered, and an interaction term between time on Facebook and weight difference was created (Aiken and West, 1991). A hierarchical multiple regression analysis tested for moderation via the PROCESS add-on for SPSS by Andrew Hayes. In the first step, time on Facebook and desired weight change were included, and in the second step, the interaction term between time on Facebook and desired weight change was added. The final model accounted for a small but significant proportion of the variance in paying attention to physical appearance,  $R^2 = 0.052$ ,  $F(3, 786) = 11.362$ ,  $p < 0.001$ . The interaction term was not significant,  $b = 0.001$ ,  $t(786) = 0.845$ ,  $p = 0.399$  (Table 4). H2 was partially supported: time on Facebook was significantly related to paying attention to physical appearance but desired weight change did not moderate the relationship.

When testing H3 (desire for weight change would moderate the relationship between time on Facebook and body image, with women wanting to lose weight experiencing more negative body image, controlling for an eating disorder diagnosis and weight difference), three measures were used to assess body image: feeling negatively after viewing posts/photos on Facebook, BSQ scores, and EAT-26<sup>®</sup> scores and each was examined separately.

First, we examined feeling negatively after viewing posts/photos. A hierarchical multiple regression analysis tested for moderation. In the first step, time on Facebook and desired weight change were included, and in the second step, the interaction term between time on Facebook and desired weight change was added. The final model accounted for a small but significant proportion of the variance in feeling negatively,  $R^2 = 0.037$ ,  $F(3, 793) = 7.935$ ,  $p < 0.001$ . The interaction term was not significant,  $b = 0.001$ ,  $t(793) = 0.550$ ,  $p = 0.583$ . For all levels of desired weight change, as time on Facebook increased, so did feeling negatively after viewing posts/photos. Thus, time on Facebook was significantly related to feeling negatively but desired weight change did not moderate the relationship.

No significant correlation was observed between time on Facebook and BSQ scores,  $r(799) = -0.021$ ,  $p = 0.552$ . A hierarchical multiple regression analysis tested for moderation. In the first step, time on Facebook and desired weight change were included, and in the second step, the interaction term between time on Facebook and desired weight change was added. The final model accounted for a significant proportion of the variance in BSQ scores,  $R^2 = 0.163$ ,  $F(3, 768) = 21.279$ ,  $p < 0.001$ . The interaction term was not significant,  $b = -0.001$ ,  $t(768) = -0.979$ ,  $p = 0.328$ . For all levels of desired weight change results were not significant. Thus, time on Facebook was not related to BSQ scores.

No significant correlation was observed between time on Facebook and EAT-26<sup>©</sup> scores,  $r(833) = 0.037$ ,  $p = 0.283$ . A hierarchical multiple regression analysis tested for moderation. In the first step, time spent on Facebook and desired weight change were included, and in the second step, the interaction term between time on Facebook and desired weight change was added. The final model accounted for a small but significant proportion of the variance,  $R^2 = 0.048$ ,  $F(3, 797) = 7.972$ ,  $p < 0.001$ . The interaction term was significant,  $b = -0.002$ ,  $t(797) = -2.005$ ,  $p = 0.045$ . The interaction was probed using simple slopes tests for different levels ( $\pm 1$  SD, mean = 0) of the moderator, which created three regressions equations. Values were then chosen for time on Facebook to represent average time, low time (-1 SD), and high time (+1 SD). Results indicated that the simple slopes for maintain weight and gain weight were not significant,  $\beta = -0.012$ ,  $t(797) = 1.377$ ,  $p = 0.169$  and  $\beta = -0.02$ ,  $t(797) = -0.939$ ,  $p = 0.348$  respectively. However, the simple slope of lose weight was significant,  $\beta = 0.06$ ,  $t(797) = 2.188$ ,  $p = 0.029$ . For those who wanted to lose weight, as time on Facebook increased, so did EAT-26<sup>©</sup> scores (Figure1). Thus, H3 was partially supported overall, as desired weight change did moderate the relationship between time on Facebook and EAT-26<sup>©</sup> scores, where more time related to higher EAT-26<sup>©</sup> scores for women who wanted to lose weight. However, no moderation was observed for feeling negatively after

viewing photos/posts, as more time related to increased negative feelings for all women; and BSQ scores were not related to time on Facebook at all.

## DISCUSSION

Participants reported little direct communication on Facebook about body or weight, although higher than previously reported (Kolpa and Moreno 2011). One explanation may be young women's drive to manage their image on social media (Goodings and Tucker 2014) and create an idealized version of themselves, as suggested by Gonzales and Hancock (2011). Thus, sharing thoughts about their weight or body may be seen as too private or even inappropriate for such a platform. However, even updates not about the body have been related to eating restraint (Hummel and Smith 2015); suggesting that a wide range of content and interactions on Facebook may contribute to its overall negative relation to body image.

Time spent on Facebook showed a negative relationship with body image, which is similar to some past findings from adolescents (Tiggemann and Miller 2010; Tiggemann and Slater 2013) and young women (Fardouly and Vartanian 2015; Mabe et al. 2014). This relationship emerged through a direct question linking Facebook use to consequent negative feelings and through the EAT-26<sup>©</sup> scale, but not BSQ. Such discrepancies have occurred frequently in research on body image and traditional media (Grabe et al. 2008). One explanation may be that body negativity and constant comparison to others are the first steps toward body image problems, which college women may develop over time. Thus, it may be too early for tests such as the BSQ to catch them, although for women wanting to lose weight more time on Facebook related to more symptoms of disordered eating, which implies that some users may in fact experience stronger negative reactions to content than others.

For all women, more time on Facebook related to more body and weight comparisons, more attention to the physical appearance of others, and more negative body attitudes after viewing posts and photos. Some of these findings challenged our hypotheses that only



women wanting to lose weight would experience negative feelings or would pay attention to physical appearance, which were based on past research linking “significant body issues” and higher weight to stronger reactions to thin ideal media images (Egbert and Belcher 2012; Groesz et al. 2002). In this study all women showed similar bodily attitudes related to their exposure to Facebook. This suggests that social media may affect a wider group of women than traditional media and may trigger reactions even among those without preexisting body issues. Future studies could explore such possibilities further.

Desire for weight change moderated the relationship between Facebook exposure and disordered eating symptoms, such that those who wanted to lose weight scored higher on the EAT-26<sup>©</sup> test than those who wanted to gain or maintain weight with higher exposure to Facebook. As pointed earlier, this finding corresponds to past research about the moderating role of “significant body issues” and higher weight (Egbert and Belcher 2012; Groesz et al. 2002). However, in this study the moderation occurred only for the test for disordered eating symptoms and not for other hypothesized relationships mentioned earlier. This may suggest a two-tier connection to social media, in which virtually everyone develops “weaker” and potentially less harmful attitudes and behaviors, such as more attention to physical appearance or more body negativity, while a sub-group of women develops “stronger” more unhealthy behaviors. Our finding extends that of Mabe et al. (2014), who found a small positive correlation between time spent on Facebook and disordered eating. Therefore, women wanting to lose weight may be more vulnerable to Facebook content and may need special attention from practitioners and further examination from researchers.

More time on Facebook related to more body comparisons, which showed that the social comparison mechanism behind mass media’s effects on body image (Knobloch-Westerwick and Romero 2011) may also apply to social media. Comparisons with mass media are typically upward due to the idealized presentation of women’s bodies (Goodman

2005). The same may be true for social media, despite the presence of similar others. College women tended to make upward appearance comparisons to close friends, distant peers and celebrities, which mediated the relationship between Facebook usage and body image concerns (Fardouly and Vartanian 2015). The present study also points to the possibility for upward comparisons due to the relationship to disordered eating symptoms and negative feelings after viewing Facebook.

We began with a discussion of mass media's selling of thin images and the relation to young women's body dissatisfaction (Grabe et al. 2008). This study related body dissatisfaction and disordered eating symptoms to Facebook use. The next question is: how realistic are the images young women see there? Past studies have suggested that images on Facebook may be far from reality, as women brand themselves (Goodings and Tucker 2014), "untag" unflattering photos (McLaughlin and Vitak 2012), and strive to present an "ideal self" (Gonzales and Hancock 2011). However, because these women are similar others (i.e., friends, colleagues), their looks may be ascribed a dose of realism, which they lack. The assumption of realism, however, may be making the photos and content more influential, similar to the moderating effect on viewers of reality television (Egbert and Belcher 2012).

Finally, some overall findings are worth noting. Most participants showed a desire to change their bodies, similar to past research (Malinauskas et al. 2006). The women's mean weight of 150 pounds, however, is the mean weight of 19-year-olds in the United States (Fryar, Gu, and Ogden 2012), which suggests a continued disconnect between their standard-size bodies and aspirations for thinner versions of them. The same idea was evident in the results on ideal weight. Women's mean ideal weight was 19 pounds below their mean current weight. That in itself is concerning, provided that the sample's mean current weight was within national averages, but also the variance in responses on ideal weight was far smaller than the variance on current weight. This suggests that while women's weight varied

considerably, their views on the weight they wanted were more consistent, thus pointing to a common vision of what their bodies should look like.

The practical implications of these findings are significant because negative body image relates to low self-esteem, depression, and obesity (Grabe et al. 2008). In terms of future interventions, public health practitioners may find it beneficial to discuss with young women that photos and posts on Facebook may misrepresent users' looks or feelings about their bodies. Discussing the assumed versus actual realism of online content is a good start in raising social media literacy, and possibly in counterbalancing negative influences on body image. Finding ways to minimize the drive for comparison is another avenue for an intervention, as social comparison could be the mechanism behind influences on body image. Finally, young women may be encouraged to identify types of online communication which would affect them positively or reduce pressures to be thin. Special attention should be paid to women who want to lose weight, as they seem to be especially vulnerable to influences from Facebook, as the present study showed.

#### Limitations and Future Directions

Several limitations are worth noting. Part of the relationship between Facebook use and body image emerged from the question linking the two, which was developed for this study. This is a potential limitation as this non-standard question could have resulted in misclassification of information and may have resulted in lack of comparability of results to other studies that have used standard instruments. Further, data came from one U.S. major public university, and a more diverse geographic sample would enhance generalizability. Another possible limitation was that data collection occurred in April-May, when women may have higher body awareness due to spring and summer breaks in the United States.

Finally, the potential for residual confounding and social acceptability bias of self-reported data cannot be ruled out.

The results of this study open many avenues for future research. The process and reasons for social comparison could be explored further via quantitative and qualitative means. One could examine women's reasons behind upward, lateral and downward comparisons on social media and their effects on body image. Another direction for research is examining the degree of assumed realism in social media content and its effects. Direct comparisons between the effects of mass media and social media on certain outcome variables would advance our understanding of the differences and similarities between them related to body image. Lastly, the variable desire for weight change should be examined further, including in experimental designs. Additional moderating and mediating variables to explore could be degree of self-disclosure, tendency for comparisons, self-esteem, as well as cross-cultural variables such as collectivism vs. individualism, uncertainty avoidance, and masculinity vs. femininity, as they could all relate to body image and use of social media.

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Table 1. Demographics of survey participants

	N	%	Mean	SD	Range
<b>Race/ethnicity</b>					
Caucasian/White	771	87.4			
African American/Black	38	4.3			
Asian/Pacific Islander	36	4.1			
Hispanic/Latino	22	2.5			
Other	14	1.6			
<b>Class standing</b>					
Undergraduate student	678	77			
Graduate/professional student	203	23			
<b>Member of campus sorority</b>					
No	739	83.8			
Yes	89	10.1			
Age, years			23.83	7.26	18-60
N = 881					

Table 2. Weight of survey participants

	Mean	SD	N	%
Current weight (in pounds)	149.64	37.94	879	
Ideal weight (in pounds)	130.65	19.20	873	
Weight difference (in pounds)	-19.10	25.77	870	
Eating disorder diagnosis			59	6.7
History of eating disorder treatment			33	3.7

Table 3. Facebook (FB) use of survey participants

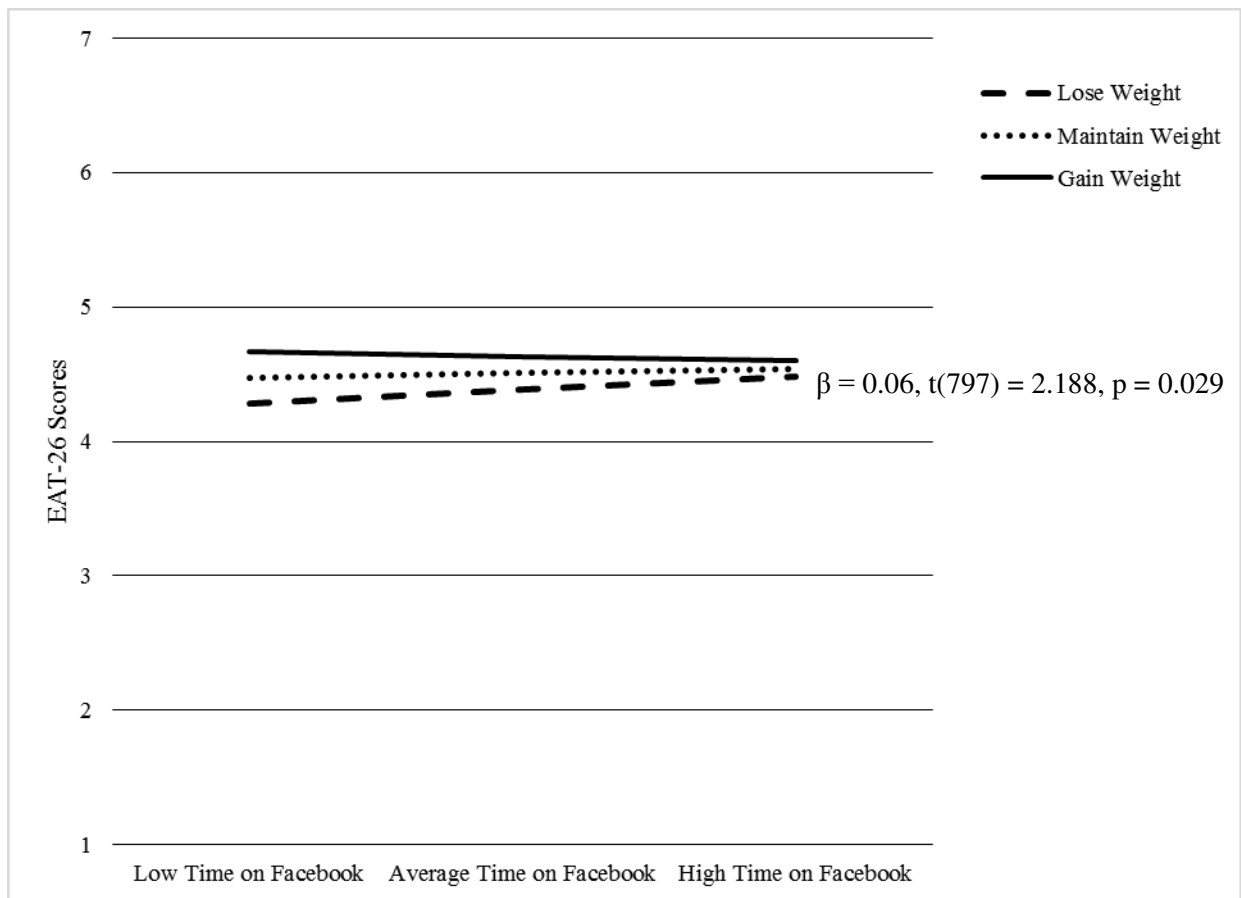
	Mean	SD	N
Days per week on FB	6.10	1.61	879
Times per day on FB on typical day	5.73	5.42	865
Overall minutes on FB on typical day	79	78.98	881
Relative share of time from overall visit:			
Reading newsfeed	45.77%	26.10	882
Looking at photos (own or others')	16.86%	15.65	881
Messaging/chatting	10.25%	14.88	879
Checking friends' timelines	7.60%	9.24	881
Updating status/posting photos	7.05%	8.13	879
Checking personal timeline	7.01%	8.42	880
Using apps/games	3.55	12.07	880
Other	2.06	10.69	871

Table 4. Results Of Hierarchical Multiple Regressions Testing For Moderation

	H2: Attention to physical appearance			H3: feeling negative after viewing posts and photos			H3: BSQ scores			H3: EAT-26 <sup>©</sup> scores		
	R <sup>2</sup>	β	SE	R <sup>2</sup>	β	SE	R <sup>2</sup>	β	SE	R <sup>2</sup>	β	SE
Full Model	0.052 **			0.037**			0.163**			0.048**		
Time on Facebook		0.132**	0.031		0.128**	0.039		-0.005	0.023		0.020	0.014
Desired weight change		0.006**	0.002		-0.012**	0.004		0.018**	0.002		0.005* *	0.001
Interaction		0.001	0.001		0.001	0.002		-0.001	0.001		-0.002*	0.001
Simple Slopes												
Lose weight		0.109**	0.041		0.105 <sup>+</sup>	0.061		0.019	0.038		0.060*	0.027
Maintain weight		0.132**	0.031		0.128**	0.039		-0.005	0.023		0.020	0.014
Gain Weight		0.155**	0.041		0.151**	0.054		-0.029	0.030		-0.020	0.022

EAT-26<sup>©</sup> scores were calculated by averaging respondents' answers to 26 questions. Scores could range from 1 to 7. BSQ scores were calculated by averaging respondents' answers to 33 questions. Scores could range from 1 to 6. Results are reported from step 2 which contained both main effects and the interaction.  
<sup>+</sup>p < 0.10, \*p < 0.05. \*\*p < 0.01.

Figure 1. Simple slopes for desired weight change on time spent on Facebook and EAT-26<sup>®</sup> scores



Note: The simple slopes were not significant for maintain weight or gain weight; but significant for lose weight ( $p = 0.029$ ), such that more time on Facebook was related to higher EAT-26<sup>®</sup> scores for women wanting to lose weight.