Facebook and the Effects of a Media Literacy Intervention on Body Dissatisfaction

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Spring 2013

A thesis presented to the faculty of The University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the Bachelor of Arts degree with Honors in Psychology

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Acknowledgements

I would like to thank my advisor, Dr. Bardone-Cone, for mentoring me through one of the biggest projects of my life with incredible patience, support, and guidance, all the while with a constant smile on her face. She has been overwhelmingly helpful, and such a pleasure to work with. Graduate student Ellen Fitzsimmons-Craft guided me in my previous independent research of writing a literature review on social networking sites that led to the research experiment of my honors thesis. The undergraduate research assistants in Dr. Bardone-Cone’s lab were critical in the creation of the study as well as leading participants through the study for data collection; their dedication and hard work is much appreciated. I also would like to acknowledge Dr. Elizabeth Jordan and Mary Higgins for serving on my Honors Committee. Gratitude goes out to those mentioned above for all they have done.
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Abstract

It is well known that mass media, such as advertisements, magazines and television, portray women in an unrealistic way by selecting models that are uniformly thin and beautiful, and also by using photo editing techniques to alter their faces and bodies. When women socially compare to the images they see in mass media, their body dissatisfaction increases. Media literacy interventions have been successful in buffering this body dissatisfaction effect by raising awareness of photo editing and unrealistic ideals of thinness and beauty. Novel forms of media, such as social networking sites like Facebook, also facilitate an environment where individuals socially compare to unrealistic images of their peers, given that individuals post mostly flattering pictures of themselves. This experimental study evaluated the effects of a media literacy intervention for Facebook, hypothesizing that the media literacy intervention would buffer hypothesized body dissatisfaction effects of Facebook, in particular for those directed to view attractive Facebook friends. Trend-level findings suggest that those who received the media literacy intervention and viewed attractive peers demonstrated the lowest appearance self-esteem after viewing Facebook. Future research must be conducted to better understand the effects of Facebook on body image and effective media literacy interventions for social media sites like Facebook.
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Research has shown that traditional forms of mass media, such as advertising, magazines, and television, portray women in an unrealistic way (Kilbourne, 1994). These forms of media portray women as uniformly very thin and attractive. This is accomplished by selecting models and actresses that are already very thin (Grabe, Ward, & Hyde, 2008), and by using photo editing programs to alter bodies and faces to make them look thinner and more attractive (Reaves, Hitchon, Park, & Yun, 2004). The thin ideal presented in the media is an unrealistic and mostly unattainable way for women to look (Spitzer, Henderson, & Zivian, 1999). And yet, women internalize the thin ideal as representing how they should look and what they should strive for (Myers, Ridolfi, Crowther, & Ciesla, 2012). After making comparisons to media images (e.g., from magazines,) women commonly experience body dissatisfaction (Thompson & Heinberg, 1999). Some research has also explored how novel forms of media, such as social networking sites like Facebook, also facilitate an environment where individuals socially compare to unrealistic images (Bardone-Cone, Fitzsimmons-Craft, Higgins, Brownstone, Harney, & Karam, 2013). The current study uses an experimental design to examine the effects of comparing oneself to images of peers on Facebook, as well as test whether a media literacy intervention can buffer the hypothesized negative effects.

Images of Women in Traditional Media

While ideals of beauty can be transmitted in several ways, such as by peers and parents, traditional media has a very powerful influence on women (Bessenoff, 2006). Models already do not represent the way most women look; in addition, their bodies and faces are digitally altered to look thinner and more attractive (Thompson & Heinberg, 1999). Digital modification techniques, such as Photoshop and other photo editing tools, are used to further enhance the
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looks of models. Photo editing ranges from removing stray hairs and taking away blemishes, to digitally removing inches from hips, waists, and thighs, as well as changing the size of certain features based on desirability, such as breasts and eyes (Bennett, 2008). Further, techniques such as airbrushing, soft-focus cameras, and the use of filters make representations of women in traditional media less realistic and less attainable for women to achieve. However, the manipulated nature of images of women is not made salient to media consumers. There has been scholarly debate over whether photo manipulation of women’s bodies in the media is ethical. Reaves and colleagues’ research findings suggest that upon learning about the prevalence of digital alterations in media magazine ads, readers disapprove of its use in manipulating models’ bodies to be thinner; readers judged it to be unfair and unethical to present altered images as realistic (2004).

Effects of Women Comparing Themselves with Traditional Media Images

Research has shown that exposure to the thin ideal in traditional media is related to weight concerns, body dissatisfaction, and disordered eating behavior (Myers et al., 2012). Disordered eating behavior, such as dieting, is sometimes an outcome when a woman tries to achieve the thin ideal (Harrison, 2001). Mood, self-esteem, and depression are also affected by viewing the thin ideal (Bessenoff, 2006). A meta-analysis with data from 25 studies found that body dissatisfaction increased more after exposure to thin traditional media images than after viewing images of models that were of average size, plus size models, or inanimate objects (Groesz, Levin, & Murnen, 2002). Groesz and colleagues’ results support the theory that traditional media perpetuates the thin ideal and elicits body dissatisfaction among women (2002).

An avenue by which unrealistic representations of women in the media may contribute to damaging psychological effects is via social comparison (Myers et al., 2012). Festinger’s social
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comparison theory proposes that individuals have a desire to determine their progress in life, and they do so by seeking standards set by others to which they can compare themselves (1954). Research suggests that most social comparison is upward social comparison (Franzoi, Vasquez, Sparapani, Frost, Martin, & Aebly, 2012), which occurs when individuals compare themselves to targets perceived as superior (e.g., more attractive). When women compare themselves to images of women in the mass media, they make upward comparisons to the thin ideal. These individuals compare themselves to unrealistic representations of beauty that are often photo edited to enhance attractiveness and thinness of body.

Self-discrepancy theory, in combination with social comparison theory, may help explain the negative effects women experience after being exposed to media. Bessenoff (2006) found that women with high levels of body image self-discrepancy were more likely to engage in social comparison to media that reinforces the thin ideal. Further, Harrison’s (2001) research suggests a causal relationship between social comparison and developing self-discrepancies. For example, a woman might compare herself to a model in the media and realize the ways in which she “falls short” of the standard to which she is comparing herself (i.e., making salient body image self-discrepancy), thus exacerbating body dissatisfaction (Harrison, 2001).

Social Media: A New Source of Comparison with Ideal Images

Social comparison to the thin ideal in traditional media is not a new topic. However, little research has investigated how social media, and social networking sites (SNS) like Facebook in particular, represent another, potentially harmful, realm for individuals to engage in social comparison. SNSs are web-based internet sites that allow users to construct a public (or partially public) profile within the system, establish a list of other users, or “friends,” that they share a connection with, and communicate via posted photos and comments with other users they
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establish a connection to within the SNS (Boyd & Ellison, 2007; Steinfield, Ellison, & Lampe, 2008). SNSs in general have become increasingly popular in recent years (Back, Stopfer, Vazire, Gaddis, Schmukle, Egloff, & Gosling, 2010). According to Globalwebindex (2013), Facebook is the most used SNS, followed by Google+, Twitter, Myspace, and LinkedIn, among others. As of December 2012, Facebook boasted more than one billion monthly active users, and 618 million daily active users (Facebook Newroom, 2012). The remaining manuscript will focus on Facebook, although many of the statements made will apply to other SNSs.

Self-presentation, Identity Construction, and Social Comparison on SNSs

Facebook allows users to participate in an environment where a more ideal identity can be created and conveyed (Zhao, Grasmuck, & Martin, 2008). There are many ways to manage self-presentation on Facebook. Facebook users can use profile pictures, personal information, wall posts, friend lists, comments on others pages, and pictures to portray a certain lifestyle they see as desirable. Users can also hide, or untag, photos and information that they might perceive as undesirable (Judd, 2010). Some users even enhance the photos they post on Facebook through the use of photo editing software, such as Instagram or Photoshop, among others (Mehdizadeh, 2010).

Researchers have found that individuals engage in social comparison behavior via SNSs (Manago, Graham, Greenfield, & Salimkhan, 2008). SNS users utilized the site to construct a sense of self in relation to other peers, gauging their overall status relative to others, thus implicitly engaging in social comparison (Gila, Castro, Gómez, & Toro, 2005). Further, Bardone-Cone and colleagues’ (2013) found that comparison with images on SNSs was common, with about 43% of college females reporting comparing themselves with SNS images between “often” and “always.” Social comparison may be intensified on sites like Facebook
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because peers are easily accessible on these networks, and their personal information is open to observation. Given that many Facebook users create an ideal self through their profiles, when users look at images on Facebook, they are being exposed to and comparing themselves to idealized images of their peers. It also may be the case that women see the peers they are comparing themselves to on Facebook as individuals whose weight, shape and appearance may seem more attainable in contrast to women in the media such as models and actresses (Bardone-Cone et al., 2013). It is likely that, just as viewers of traditional media may not keep in mind that these images may be airbrushed or edited, individuals using Facebook also may not actively remember that the images they see on Facebook are likely of individuals at their best in terms of appearance, and not necessarily what they look like on a daily basis (Bardone-Cone et al., 2013). Thus, the potential for feeling like one has “fallen short,” or experiences self-discrepancies, in regard to body image and physical appearance is increased.

There is empirical support for viewing SNSs (and for the social comparison that appears to be present in SNSs) being associated with or contributing to body dissatisfaction and disordered eating. Tylka and Sabik (2010) reported that women spend much of their time on SNSs looking at others’ photos, which is their main domain for social comparison; therefore browsing SNSs creates an environment that increases risk for body dissatisfaction. Bardone-Cone et al. (2013) found that comparison with images on SNSs was strongly associated with body dissatisfaction and disordered eating tendencies. Further, Latzer, Katz, and Spivak (2011) found the more time a female spent on a SNS, the more likely she was to exhibit binge-purge behaviors, body dissatisfaction, and dieting behaviors. In experimental work, Haferkamp and Krämer (2011) found that individuals indicated higher rates of negative body image after looking at profiles of attractive users as compared with profiles of less attractive users. In summary,
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Facebook and social networking sites can be a space that promotes social comparison, with implications for body dissatisfaction.

**Media Literacy Intervention**

With the extensive body of literature that shows the damaging effects traditional media have on women’s body image, researchers have tested media literacy interventions in an attempt to buffer some of the negative consequences of media. Media literacy interventions aim to teach individuals to critically analyze the thin ideal messages of the media and show how they are not realistic or accurate portrayals of women. In this way, media literacy interventions seek to prevent thin ideal internalization and the process of social comparison (Yamamiya, Cash, Melny, Posavac, & Posavac, 2005).

As one example of the application of a media literacy intervention, Posavac, Posavac, and Weigel (2001) performed an experiment where women received either no intervention or one of two types of media literacy interventions that had psychoeducational foundations, the “Artificial Beauty” condition and the “Genetic Realities” condition. The “Artificial Beauty” condition argued that the standard of beauty and thinness portrayed in the media is created using techniques like airbrushing, make-up, and photo editing of flaws. The “Genetic Realities” condition argued that genetics dictate a lot of body weight and shape, and that most individuals are biologically inclined to be heavier than representations of women in the media. Not surprisingly, results of this study indicated that exposure to women in the media who portray the thin and beautiful ideal increased women’s body dissatisfaction. However, when women received either of the psychoeducational media literacy interventions, the negative effect on body image was decreased (Posavac et al., 2001).
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Most research on media literacy interventions has found such interventions are helpful in preventing women from making damaging social comparisons with unrealistic media images depicting the thin ideal, which buffers negative side effects on body image, at least in the short term (Slater, Tiggemann, Firth, & Hawkins, 2012). However, no previous research has investigated a media literacy intervention in relation to social media. This study will investigate the effectiveness of a media literacy intervention that educates individuals on how most users of Facebook present an ideal visual image of themselves in their profile and emphasizes the discrepancy between how these individuals present themselves on Facebook and reality. This study will also examine the effect of being directed to view the Facebook pages of attractive peers, thus facilitating upward social comparison, similar to work by Haferkamp and Krämer (2011).

The current study hypothesized that a media literacy intervention would buffer negative effects of Facebook viewing on body image, but in particular for those directed to view the Facebook pages of attractive peers. Thus, intervention and Facebook viewing were expected to interact to predict body dissatisfaction. In particular, body dissatisfaction is predicted to increase the most (and appearance self-esteem decrease the most) for those who view the Facebook pages of peers deemed attractive and who do not receive the media literacy intervention; it is expected that body image will be least negatively affected among those who receive the media literacy intervention and are not directed to view attractive peers on Facebook. If no significant interactive effects are found, the main effect of intervention on body dissatisfaction will be explored. For example, those who do not receive the media literacy intervention are expected to report higher levels of body dissatisfaction and lower levels of appearance self-esteem than those who receive the media literacy intervention.
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Method

Participants

The study sample included 175 undergraduate female students from the University of North Carolina at Chapel Hill, a large Southeastern public university. Participants signed up for the study through their introductory psychology courses. Participants’ ages ranged from 17-24 with a mean age of 18.66 years ($SD = .96$). The majority of participants identified as Caucasian (66.3%), with 11.4% identifying as African American, 8% as Latina/Hispanic, 6.9% as Asian American/Asian, and 7.5% as biracial or other. Average body mass index (BMI) based on weight and height self-report was 22.66 kg/m² ($SD = 3.55$) with a range from 13.25 to 40.83. Highest parental education attained, which serves as a proxy for socio-economic status, was 16.83 years ($SD = 2.49$), or the equivalent of almost four years post-secondary. To sign up for the study, participants were required to be within the age range of 17-25 and to have an active Facebook account.

Procedure

All aspects of this study were approved by the university’s Institutional Review Board, with each participant providing written consent before the experiment began. Participants were randomly assigned to one of four conditions capturing the 2 (intervention) x 2 (Facebook viewing) experimental design. First, participants completed an online questionnaire assessing, among other things, body dissatisfaction and state self-esteem. Next, they received the appropriate intervention for the condition they were randomly assigned to: the media literacy intervention or the control intervention (see below). After the intervention, participants were given the appropriate Facebook viewing instructions for their condition (viewing Facebook as usual vs. viewing the Facebook pages of female Facebook friends considered very attractive, see
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details below). After participants browsed Facebook in private for 10 minutes, they logged off their account and completed another online questionnaire assessing a wide range of variables including body dissatisfaction, state self-esteem, and their pattern of Facebook viewing. (Ten minutes of Facebook viewing was chosen based on pilot data suggesting that college students are typically on Facebook about 5-10 minutes at a time and based on wanting to provide enough of an exposure to Facebook.) Participants were debriefed at the end of the study and assigned research credit for their participation in the study. Participation in this study lasted between 45 minutes to one hour.

Interventions

Both the media literacy and the control intervention involved the participant reading a short article and viewing a short video clip. This was done under the pretense of wanting to make sure all participants had the same basic information about Facebook. The articles were created by the lab for the purpose of the study and were presented as articles from The Cavalier Daily, the University of Virginia’s school newspaper. We chose this source since the University of Virginia is a peer institution with students similar to those at the University of North Carolina, the site of data collection. We received permission from the newspaper’s editors to use The Cavalier Daily’s name and in the debriefing we informed participants that the articles were created by us and were never published in the university’s newspaper. Across both interventions, the articles had approximately the same number of words (one double-spaced page of text) and the video clips were approximately the same length (about 2.5 minutes).

Media literacy intervention. The article for the media literacy intervention focused on how students portray an ideal self through their Facebook profiles. Strategies specifically mentioned in the article included students using photo editing techniques to alter their images,
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untagging unflattering photos, and only posting photos of them looking their best. After the participant read the article, the research assistant guided her in a short discussion about the article to ensure that the participant understood the main points. Next, participants watched a video clip that was a composite of two primarily visual clips (with the same underlying music) and one news report. The first part of the video was the “Dove: Evolution” clip, which shows an ordinary-looking woman transformed into a billboard model through makeup and photo editing techniques. The video then transitions to a similar clip that highlights a male’s body being digitally manipulated to look more toned and muscular. The last part of the video clip is a news report on the damaging effects of engaging in social comparison on Facebook; the report suggests that Facebook users portray an ideal self through their profiles and that comparing to users on Facebook is not realistic.

Control intervention. The article for the control intervention focused on the widespread use of Facebook among college students. It discussed several statistics related to this topic, as well as the different ways students use Facebook to communicate with others. After the participant read the article, the research assistant guided her in a short discussion about the article. Next, participants watched a video clip that was a composite of two primarily visual clips (with the same underlying music as in the media literacy intervention) and one news report, thus paralleling the media literacy video clip. The first part of the video included two info-graphics related to statistics of Facebook use, how people spend their time on Facebook, and how businesses and other companies also use Facebook as a means of communication and advertisement. The news report focused on the widespread use of Facebook, provided statistics about Facebook use, and noted how increasing numbers are visiting Facebook with their mobile phones.
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Facebook Viewing Instructions

Participants in both Facebook viewing conditions were instructed to only view images and read text, and to not add any posts to their wall or the walls of others. They were both also instructed to only go to Facebook pages of same-sex peers, where peers were defined as individuals within a few years in age.

**Facebook viewing of attractive friends.** In this condition, participants were instructed to write down the initials of 5-7 Facebook friends they were going to view on Facebook that they and others considered attractive. The instructions made clear that these Facebook friends may or may not be individuals they are friends with off-line. The purpose of the attractive condition was to prime participants to engage in upward social comparison.

**Facebook viewing “as usual.”** In this condition, participants were instructed to browse Facebook as they normally would, and to write down the initials of the friends whose Facebook pages they viewed. The instructions made clear that these Facebook friends may or may not be individuals they are friends with off-line. It was suggested to the participants that most people view 5-7 Facebook pages in 10 minutes in order to guide participants to viewing about the same number of Facebook pages as in the “attractive” condition.

Measures: Outcomes Assessed

**Appearance self-esteem.** Appearance self-esteem was assessed with the State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991) before and after the combined intervention and Facebook viewing. This scale has 20 items rated from 1=strongly disagree to 5=strongly agree and yields three factor scores: academic performance, social evaluation, and appearance self-esteem. For the purpose of this study, we used the appearance self-esteem subscale as an outcome variable. Examples from this scale include: “I feel unattractive” and “I feel satisfied...
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about the way my body looks right now.” The SSES is sensitive to fluctuations in self-esteem and is often used to measure self-esteem changes in laboratory manipulations (Heatherton & Polivy, 1991). Psychometric support is adequate, with coefficient alpha for the entire scale being 0.92 (Heatherton & Polivy, 1991). In the current study, alpha for the appearance subscale was .84 prior to viewing Facebook and .87 after viewing Facebook.

**Body dissatisfaction.** Body dissatisfaction was assessed before and after the combined intervention and Facebook viewing by asking participants various questions concerning their appearance. Participants were asked the overarching question: “Overall, how satisfied are you with your appearance?” with response options from 1=very dissatisfied to 7=very satisfied. Using the same response scale, participants were also asked how satisfied they were “at this moment” in terms of their weight, shape, and muscle tone. Questions were created within the research lab to attempt to identify possible changes in aspects of body satisfaction.

**Data Analysis Plan**

Descriptive analyses were performed to report on the demographics and baseline levels of body dissatisfaction and appearance self-esteem across the four groups. We performed one-way analysis of variance (ANOVA) to determine if there were any differences in body dissatisfaction and appearance self-esteem prior to the intervention and Facebook viewing.

To test the core hypothesis of this study, we performed 2 (intervention, i.e., media literacy or control) x 2 (Facebook viewing condition, i.e., “attractive” or “as usual”) analysis of covariances (ANCOVAs) for each body image outcome of interest. We used ANCOVA to control for pre-Facebook viewing levels of appearance self-esteem and body dissatisfaction in predicting post-Facebook viewing levels. If no significant interaction emerged, we performed a
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one-way ANCOVA. In particular, we tested if, collapsing across Facebook viewing conditions, the media literacy intervention had a buffering effect on body dissatisfaction.

Results

The four groups were similar in terms of the demographics of age, BMI, and highest parental education attained (see Table 1). The four groups also were similar in terms of baseline appearance self-esteem and body dissatisfaction (overall, weight, shape, tone) (see Table 2). One-way ANOVAs indicated that there were no significant group differences in demographics or baseline appearance self-esteem or body dissatisfaction.

When examining appearance self-esteem, the 2 (intervention, i.e., media literacy or control) x 2 (Facebook viewing condition, i.e., “attractive” or “as usual”) ANCOVA yielded a marginally significant interactive effect. That is, there was a trend for the intervention received interacting with the Facebook viewing instructions to predict appearance self-esteem, $F(1,168) = 2.80, p = .096$, partial eta squared = .02. See Table 3 for the appearance self-esteem means and standard deviations following the Facebook viewing, controlling for baseline levels. The nature of the interaction was not as predicted, with those who received the media literacy intervention and viewed the attractive Facebook profiles indicating lower ratings of appearance self-esteem, when we hypothesized that the media literacy intervention would especially buffer a decrease in appearance self-esteem for those guided to view attractive Facebook peers. Follow-up analyses showed that intervention did not significantly predict appearance self-esteem in the Facebook as usual condition, $F(1, 82) = .83, p = .365$, partial eta squared = .01. It was also not significant in the Facebook attractive condition, $F(1, 85) = 2.16, p = .145$, partial eta squared = .03, although it was closer to being significant.

A 2 (intervention) x 2 (Facebook viewing condition) ANCOVA was conducted on overall appearance satisfaction. There was no significant interaction effect between intervention and
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Facebook viewing instructions in predicting overall appearance satisfaction, $F(1,170) = 1.06, p = .306$, partial eta squared = .01. This indicates that the effect of intervention on overall appearance satisfaction did not differ by Facebook viewing condition. Since no significant interaction emerged, we examined whether, collapsing across Facebook viewing conditions, the media literacy intervention had an effect on overall appearance satisfaction. The result of this one-way ANCOVA was non-significant, $F(1, 172) = .06, p = .813$, partial eta squared = .00, indicating that there was no significant main effect of media literacy intervention on overall appearance satisfaction.

A 2 (intervention) x 2 (Facebook viewing condition) ANCOVA was conducted on weight satisfaction. There was no significant interaction effect between intervention and Facebook viewing instructions on weight satisfaction, $F(1, 169) = 1.81, p = .180$, partial eta squared = .01. This indicates that the effect of intervention on weight satisfaction did not differ by Facebook viewing condition. Since no significant interaction emerged, we examined whether, collapsing across Facebook viewing conditions, the media literacy intervention had an effect on weight satisfaction. The result of this one-way ANCOVA was non-significant, $F(1,171) = .04, p = .834$ partial eta squared = .00, indicating that there was no significant main effect of media literacy intervention on weight satisfaction.

A 2 (intervention) x 2 (Facebook viewing condition) ANCOVA was conducted on shape satisfaction. There was no significant interaction effect between intervention and Facebook viewing instructions on shape satisfaction, $F(1,168) = .003, p = .958$, partial eta squared = .00. This indicates that the effect of intervention on shape satisfaction did not differ by Facebook viewing condition. Since no significant interaction emerged, we examined whether, collapsing across Facebook viewing conditions, the media literacy intervention had an effect on shape
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satisfaction. The result of this one-way ANCOVA was non-significant, $F(1, 170) = 1.57, p = .212$  partial eta squared = .01 indicating that there was no significant main effect of media literacy intervention on shape satisfaction. Although the primary main effect of interest was the media literacy intervention, we noticed that in the 2 x 2 ANCOVA with shape satisfaction as the dependent variable, the main effect of Facebook viewing was marginally significant. Thus, we followed up on this interesting finding in an exploratory fashion. We examined whether, collapsing across media literacy intervention, the Facebook viewing condition had an effect on shape satisfaction. The result of this one-way ANCOVA was marginally significant, $F(1,170) = 3.34, p = .070$, partial eta squared = .02, indicating that there was a trend for Facebook viewing condition influencing shape satisfaction. In particular, those instructed to view attractive peers on Facebook had a marginally significant decrease in shape satisfaction ($M = 3.56, SD = 1.69$) than those who viewed Facebook as usual ($M = 3.87, SD = 1.47$).

Lastly, a 2 (intervention) x 2 (Facebook viewing condition) ANCOVA was conducted on tone satisfaction. There was no significant interaction effect between intervention and Facebook viewing instructions on tone satisfaction, $F(1, 170) = .26, p = .612$, partial eta squared = .002. This indicates that the effect of intervention on tone satisfaction did not differ by Facebook viewing condition. Since no significant interaction emerged, we examined whether, collapsing across Facebook viewing conditions, the media literacy intervention had an effect on tone satisfaction. The result of this one-way ANCOVA was non-significant, $F(1, 172) = .03, p = .862$, partial eta squared = .00, indicating that there was no significant main effect of media literacy intervention on tone satisfaction.

Discussion

The results of this experiment were different than hypothesized. We theorized that a media literacy intervention would help buffer against the body dissatisfaction expected from
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women comparing themselves to other peers on Facebook (Bardone-Cone et al., 2013); however, the results of this study suggest either no effect or the opposite effect. There was a trend for those who received the media literacy intervention and who were in the Facebook “attractive” condition to demonstrate the lowest appearance self-esteem after Facebook viewing. The interactive models for the other body dissatisfaction-related dependent variables were not significant.

Why might the trend-level interactive effect of intervention and Facebook viewing have occurred in relation to appearance self-esteem? One possibility is that participants might edit their photos on Facebook in similar ways that the media literacy intervention suggested. If this was the case, they may have felt they were being “called out” on presenting on Facebook in an ideal, unrealistic way that, even still, perhaps did not compare favorably to the Facebook presentations of attractive peers. Perhaps these participants were getting the message from our media literacy intervention that they do not appear as ideal in real life as they do in their Facebook profile, or as their attractive peers, and therefore felt worse in terms of their appearance self-esteem. However, we note that the interactive effect was only marginally significant with no clear follow-up effects of media literacy within Facebook viewing group, and that it is not clear why a trend-level effect would operate for appearance self-esteem and not the other body dissatisfaction variables.

Given the primary interest in the media literacy intervention, most of the discussion will focus on reasons why the expected buffering effect did not occur. Perhaps the media literacy intervention of the current study was not effective because of the content or structure. Other studies that have implemented media literacy interventions against traditional thin ideal mass media have been successful. Stice, Chase, Stormer, and Appel (2001) conducted a study with a
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media literacy intervention based on dissonance theory. This theory suggests that when individuals have thoughts that are inconsistent, they experience psychological discomfort and desire to make the thoughts consistent by making them align. In their study, women who had internalized the thin ideal and struggled with body image concerns were randomized to receive either a media literacy intervention or a control intervention. In their media literacy intervention, participants performed verbal, written, and behavioral exercises that demanded they critique the norms of the thin ideal. Results of this experiment indicated a decrease in body dissatisfaction as well as thin ideal internalization (Stice et al., 2001). Another study on media literacy interventions yielded similar findings. Yamamiya and colleagues (2005) provided participants media literacy information, after which they were asked to recall and write down arguments against how the media portrays the thin ideal. The negative effect of the media exposure on body image was buffered by this media literacy intervention among women who highly internalized the thin ideal (Yamamiya et al., 2005). It is possible that other approaches to media literacy, such as the ones in the aforementioned studies (e.g. dissonance-based interventions), would be more effective in buffering potential body dissatisfaction effects from viewing Facebook.

However, it could also be the case that some media literacy interventions that are supposed to make individuals feel better about their bodies, could make them actually feel worse by drawing attention to appearance and potentially cuing individuals to engage in social comparison. Support for this theory is provided by a study that found that warning labels as a form of media literacy intervention might not be efficacious in preventing body dissatisfaction. An experiment by Slater and colleagues (2012) investigated how adding warning labels to fashion magazines, as a form of media literacy, affected women’s body image. In the experiment, participants were assigned to one of three conditions: no warning label, a general
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warning label indicating the photo had been digitally altered, or a specific, more detailed warning label indicating which part/s of the model’s body had been digitally altered. The results of the study showed that the warning labels did not buffer the negative effects of exposure to thin ideal media images (Slater et al., 2012). Instead, the findings suggested the specific warning label increased women’s body dissatisfaction. Perhaps in this study the warning labels signaled participants to think about their bodies. We theorize that this could have also happened with the media literacy intervention in the current study and been most damaging to appearance self-esteem when viewing attractive peers.

The finding that those who were in the condition instructed to view attractive Facebook profiles had a marginally significant decrease in body shape satisfaction compared to those instructed to view Facebook “as usual” was not surprising since those instructions pulled for upward comparison. However, it is interesting that only body shape satisfaction showed a trend for a difference between groups, whereas body weight satisfaction and body tone satisfaction did not. Perhaps this occurred because weight is not indicated on Facebook profiles, and tone might be difficult to see from pictures, but body shape is more visually evident (e.g. waist, hips, and breasts).

It should also be noted that this study did not find that viewing Facebook caused the hypothesized negative effect on body image. While previous studies have found that women socially compare to others on Facebook (Bardone-Cone et al., 2013), perhaps the artificial environment of participants viewing Facebook in a lab took away from this effect or perhaps longer periods of viewing Facebook (or more direction to look at appearance of peers, in particular) are necessary for body image effects. Alternatively, perhaps moderators are necessary to identify which Facebook users experience body dissatisfaction from viewing Facebook; for
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example, it may be that individuals who have high body shame or low self-esteem are most susceptible to negative body image effects from Facebook. Recent research results have found that maladaptive Facebook usage, defined as the tendency to socially compare to others and prompt negative social evaluations on Facebook, predicted increases in bulimic symptoms, mediated by body dissatisfaction (Smith, Hames, & Joiner, 2013). More research should be done to examine whether there is a causal relation between viewing Facebook and body dissatisfaction among women.

Inherent in this research study were several strengths. Social media is a relatively new area of research, and the connection between Facebook, social comparison, and body dissatisfaction is a recent psychological discovery (Bardone-Cone et al., 2013). This is the first experimental study testing a media literacy intervention for a social networking site, making this study a novel one. This study’s experimental design is also a strength because it allowed for the investigation of causality, which is especially important since most previous research in this area has been correlational. The 2 x 2 design is another strength in that it added richness and complexity to the study by considering a possible intervention effect in two Facebook viewing conditions (including one promoting upward comparison). Both the control intervention and media literacy intervention had a reading component and a visual component, which allowed participants to receive the intervention message the researchers were trying to convey multiple times and in different formats. Lastly, a large sample size was also a strength of the study.

While the research study had several strengths, there were also limitations. First, the media literacy intervention might not have conveyed the intended message in an effective manner. As explained in the methods section, part of the media literacy intervention involved showing a video clip of extreme photo editing techniques of models used in mass media
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advertisements. The media literacy intervention was meant to convey to participants that
Facebook users often edit the photos they post, but editing on Facebook likely occurs in a less
extreme way than in the media literacy video clip. Participants in the media literacy condition
might have found the video clip to be unrealistic for college students and not relatable. Another
limitation of the study is that we were not able to monitor participants’ Facebook use to ensure
they were following the instructions and viewing Facebook the way they were asked based on
the condition they were assigned to. However, if their Facebook viewing would have been
knowingly monitored, their Facebook viewing behavior would likely have changed based on
knowledge of being monitored, decreasing the ecological validity of the Facebook viewing
component. Monitoring participants’ Facebook viewing without informing them of this would
raise ethical issues related to deception and would have required approval from the Institutional
Review Board.

A limitation of the study is generalizability to broader populations since all participants in
this study were female psychology students at a Southeastern university. However, a female
undergraduate sample is very relevant due to high levels of Facebook use among college women,
and given that most college-aged women struggle with body image issues. Another limitation is
that the research study only examined short-term effects of Facebook viewing and a media
literacy intervention on body dissatisfaction. No conclusions about long-term effects of repeated
Facebook viewing or media literacy interventions can be drawn from this study. A limitation of
the study was not controlling for the nature of the relationship with the individuals whose
Facebook profiles participants looked at. Facebook viewing instructions specified that they must
be a same-sex peer, and in the attractive condition we specified they should be an individual
“you and most others would view as very attractive.” However, we did not gauge the quality of
the relationship between the participant and the peers whose profiles they viewed. For example, if the participant in the attractive condition viewed profiles of her attractive friends she is close to, it could be the case that the participant felt good about her appearance and body because she feels like she is a part of an attractive group, thus countering the typical effects of upward comparison (Jones & Buckingham, 2005). In contrast, if the participant viewed profiles of attractive individuals she is more likely to be “jealous” of, such as a romantic partner’s ex-girlfriend, then she will not likely have the same positive relation with that peer group and not feel connected in terms of attractiveness. Lastly, a limitation of the study is that four of the dependent variables were single-item variables, and thus less robust measures of the constructs. Because these items were closely related, we could have conducted a multivariate analysis of covariate to test hypotheses or reported on the mean of the satisfaction variables, but we chose to explore each dependent variable individually in an exploratory fashion in this first attempt to examine Facebook and media literacy effects experimentally.

Assessing the dependent variables prior to the intervention is considered both a strength and a limitation of the study. By using this approach we were able to measure change in dependent variables before and after participants received the intervention and viewed Facebook. However, assessing body dissatisfaction pre-intervention might have primed participants in ways we are not sure of. That said, we did try to camouflage our dependent variables of interests with other constructs (e.g. academics, self-concept, relationships) in order to distract participants from the purpose of our study.

Future studies should learn from the strengths and limitations of this study in order to continue to evaluate the range of possible effects of Facebook on body image and self-concept, as well as to test media literacy interventions in the context of social networking sites like
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Facebook. For example, future research could create a new media literacy intervention that would more accurately show the ways in which Facebook users present in an ideal way through their profiles. Instead of showing participants a video clip of models being edited for advertisements, the video could portray how Facebook users make alterations to photos they post, such as changing the color scheme to make themselves look more attractive. Other approaches, such as a dissonance-based approach that requires participants to “own” the message, would also be important avenues to pursue. Future studies should also control for the nature of the relationship with peers that participants view. As discussed earlier, whether the participant has a positive, negative, or neutral relationship with the individuals whose profiles she views could influence the social comparison and how it makes her feel about her body. Variables should be included in future studies to explicitly assess degree of social comparison with Facebook. Lastly, future studies should seek a more demographically diverse sample. This sample would include a wider range of ages, from early teens to late adulthood, as well as greater racial/ethnic diversity and the inclusion of males.

In conclusion, this experimental study was novel with its effort to better understand the effects of a media literacy intervention when applied to viewing a social networking site, like Facebook. The results of this study found that there was a trend for those who received the media literacy intervention, and who also were instructed to view Facebook profiles of attractive peers, demonstrating the lowest appearance self-esteem after viewing Facebook. This finding was opposite than hypothesized. Since Facebook use is extremely common among college students, future research must also be done to better understand the effects of viewing Facebook on body image and to identify effective media literacy interventions for social networking sites.
References


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Doi:10.1016/j.bodyim.2004.11.001

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Table 1

Demographic Variables Across the Four Study Groups

<table>
<thead>
<tr>
<th>Intervention</th>
<th>FB Viewing</th>
<th>Age</th>
<th>BMI</th>
<th>Parental Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Literacy</td>
<td>FB attractive</td>
<td>$M = 18.67$</td>
<td>$M = 22.15$</td>
<td>$M = 17.13$</td>
</tr>
<tr>
<td></td>
<td>$SD = .80$</td>
<td>$SD = 3.56$</td>
<td>$SD = 2.26$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FB as usual</td>
<td>$M = 18.60$</td>
<td>$M = 22.57$</td>
<td>$M = 17.36$</td>
</tr>
<tr>
<td></td>
<td>$SD = .86$</td>
<td>$SD = 3.07$</td>
<td>$SD = 2.49$</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>FB attractive</td>
<td>$M = 18.59$</td>
<td>$M = 23.59$</td>
<td>$M = 16.30$</td>
</tr>
<tr>
<td></td>
<td>$SD = .84$</td>
<td>$SD = 4.16$</td>
<td>$SD = 2.65$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FB as usual</td>
<td>$M = 18.80$</td>
<td>$M = 22.33$</td>
<td>$M = 16.51$</td>
</tr>
<tr>
<td></td>
<td>$SD = 1.31$</td>
<td>$SD = 3.21$</td>
<td>$SD = 2.47$</td>
<td></td>
</tr>
</tbody>
</table>

Group Comparisons

$F(1, 171) = .92$, $F(1, 169) = 2.45$, $F(1, 171) = .00$, $p = .339$, $p = .119$, $p = .994$

Note. FB = Facebook. BMI = body mass index. Parental education refers to the highest level of education attained by a parent in years and is a proxy for socio-economic status.
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Table 2

Baseline Appearance Self-Esteem and Body Dissatisfaction Across the Four Study Groups

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Facebook Viewing</th>
<th>Appearance Self-Esteem</th>
<th>Overall Appearance Satisfaction</th>
<th>Weight Satisfaction</th>
<th>Shape Satisfaction</th>
<th>Tone Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Literacy</td>
<td>FB attractive</td>
<td>M = 19.64, SD = 4.84</td>
<td>M = 4.20, SD = 1.20</td>
<td>M = 3.80, SD = 1.74</td>
<td>M = 3.70, SD = 1.71</td>
<td>M = 3.71, SD = 1.59</td>
</tr>
<tr>
<td></td>
<td>FB as usual</td>
<td>M = 19.49, SD = 4.02</td>
<td>M = 4.40, SD = 1.20</td>
<td>M = 3.67, SD = 1.64</td>
<td>M = 3.73, SD = 1.28</td>
<td>M = 3.53, SD = 1.50</td>
</tr>
<tr>
<td>Control</td>
<td>FB attractive</td>
<td>M = 19.02, SD = 4.91</td>
<td>M = 4.09, SD = 1.55</td>
<td>M = 3.66, SD = 1.70</td>
<td>M = 3.84, SD = 1.61</td>
<td>M = 3.34, SD = 1.51</td>
</tr>
<tr>
<td></td>
<td>FB as usual</td>
<td>M = 20.27, SD = 3.87</td>
<td>M = 4.76, SD = 1.30</td>
<td>M = 4.07, SD = 1.79</td>
<td>M = 4.02, SD = 1.46</td>
<td>M = 3.76, SD = 1.64</td>
</tr>
</tbody>
</table>

Group Comparisons

- $F(1, 170) = 1.07, p = .303$
- $F(1.171) = 1.36, p = .245$
- $F(1,171) = 1.11, p = .293$
- $F(1,169) = .120, p = .729$
- $F(1,171) = 1.58, p = .211$

Note. FB = Facebook.
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Table 3

*Means and Standard Deviations for Appearance Self-esteem in the Interactive Model of Intervention x Facebook Viewing Condition*

<table>
<thead>
<tr>
<th></th>
<th>Media Literacy Intervention</th>
<th>Control Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook attractive</td>
<td>19.11 (5.03) ( (N = 44) )</td>
<td>19.30 (5.27) ( (N = 44) )</td>
</tr>
<tr>
<td>Facebook as usual</td>
<td>19.57 (4.40) ( (N = 44) )</td>
<td>19.83 (4.71) ( (N = 41) )</td>
</tr>
</tbody>
</table>