

THE IMPACT OF SOCIAL MEDIA ON BODY IMAGE
AND EATING BEHAVIORS

By

ELIZABETH ANNE KAMPF

Thesis

Submitted to the Faculty of the
Graduate School of Vanderbilt University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

in

Psychology

May, 2013

Nashville, Tennessee

Approved:

Dr. David Schlundt

Dr. Steven Hollon

TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
LIST OF FIGURES	v
Chapter	
I. INTRODUCTION	1
Statement of the Problem	8
II. METHOD	9
Sample	9
Data Collection	9
Collection Apparatus	11
Randomization	12
Measures	12
Pre-Exposure	13
Exposure	14
Post-Exposure	14
Exposure	15
Data Analysis Plan	17
III. RESULTS	21
Pre-Exposure Descriptive Analysis	21
Group Comparison	28
Post-Exposure Descriptive Analysis	31
IV. DISCUSSION	37
Implications	37
Limitations	41
Future Directions	42
Conclusions	43
APPENDIX	44
Eating Disorder Examination Questionnaire 4.0	44
Pre-Exposure Measure	49

Post-Exposure Measure	51
Mock Facebook Page Examples	53
REFERENCES	57

LIST OF TABLES

Table	Page
1. EDE-Q Subscales.....	14
2. Condition Levels.....	16
3. Exposure Language Examples.....	16
4. Comparison to Luce et al. 2008 Sample of Clinically Significant Percentages	17
5. Condition by High-Low category Crosstabulation.....	19
6. Facebook Usage Time.....	21

LIST OF FIGURES

Figure	Page
1. Structural Example of Condition Exposure	10
2. Histogram of Summed Risk Scores	18
3. Behaviors on Facebook.....	23
4. Percentages of Participants who Judge Others on Facebook.....	24
5. How Often Participants Think About Others Judging.....	25
6. Endorsed Frequency of Comparison.....	26
7. Object of Comparison.....	27
8. Estimated Marginal Means with Covariate Inclusion for Comparison	29
9. Estimated Marginal Means for Change	31
10. Frequency who have seen Pro-Ana or Pro-Mia Information on Facebook	32
11. Weight Dissatisfaction in Facebook Pictures	34
12. Feeling Inadequate Based on Appearance Comparison to Friends	35
13. Belief that Facebook can Impact Body Image and Eating Behavior	36

CHAPTER I

INTRODUCTION

For decades, society has played the “blame game” with mainstream media. Images of the thin ideal have been implicated as sources of body dissatisfaction in females and males but not without reason. Meta analyses have shown the relationship between media and poor body image, internalization of the thin ideal, and eating behaviors and beliefs (Grabe et al., 2008). The financial interests of businesses selling a variety of products have resulted in a “cult of thinness” that we are exposed to multiple times a day (Tiggerman and McGill, 2004). More specifically, studies have shown that the effect of images is mediated by the amount of social comparison reported (Tiggerman and McGill, 2004). Groesz et al. (2002) completed a meta-analysis of 25 studies finding that body image was significantly more negative after viewing images of thin women, than after viewing images of average size models, plus size models, or inanimate objects. Appearance-based social comparison also has been shown to mediate the effect of appearance-related teasing on body image and eating disturbance (Thompson et al., 1998). In addition, individuals with eating disorders have been found to have attentional biases to negative shape and weight words, typically weight-sensitive body parts (i.e. stomach, thighs), and to images of thin women rather than average or plus sized (Smith and Reiger, 2010; Vitousek and Hollon, 1990; Faunce, 2002; Lee and Shafran, 2004).

Consequently, preferential information processing reinforces individuals concerns about shape and weight.

Although mass media clearly plays a role in the development of body image and eating disturbance, less studied are the implications of real world peer comparison through friend groups or social networks. It has been shown that individuals sharing similar viewpoints on weight related factors tend to form cliques of friends (Gilbert and Meyer, 2003). More importantly, the attitude of friends has been shown to significantly predict changes in one's personal beliefs and lifestyle.

Christakis and Fowler (2007) utilized a pool of 12,067 individuals assessed longitudinally between 1971-2003 to quantitatively analyze the nature and extent of person-to-person spread of obesity. A participant's chance of becoming obese increased by 57% if he or she had a friend who became obese over the course of the study. Geographic location was insignificant while interpersonal social ties dramatically increased rates of obesity.

Paxton et al. (1999) looked at friendship circles to determine the impact of the friendship dynamics on body image, dietary restraint, extreme weight loss behaviors, and binge eating in adolescent girls. Friendship attitudes were found to contribute significantly to the prediction of individual body image concern, eating behavior, and use of extreme weight loss behaviors. To look at the consequences of real world social comparison through live interactions with the "attractive thin ideal", Krones et al. (2005) had participants interact with a thin or average sized confederate. Measures post interaction showed that exposure to the thin confederates resulted in an increase in body

dissatisfaction. Overall, current literature has shown that these peer-based comparisons increase negative body image and the pressure women feel to be thin.

Expanding on these findings, an eating disorder-specific model of interpersonal psychotherapy (IPT-ED) was proposed by Rieger et al. (2010). Because of the social relevance and prescription in some cultures of the core features of eating disorders, Rieger et al. stipulated that interpersonal factors play a significant role in the development and maintenance of eating disordered behaviors.

The idea of an interpersonal formulation of eating disorders is supported by the wide-range of evidence showing interpersonal issues in the lives of individuals diagnosed with eating disorders (Wilfley, Stein, & Welch 2003). For example, a 2010 study showed that individuals with eating disorders exhibit a submissive, nonassertive interpersonal style that caused insecure attachments for this population (Hartmann et al., 2010). In another example, this clinical population endorses significantly higher levels of social anxiety than a nonclinical comparison group (Hinrichsen et al., 2013). Other studies of note include Grisset and Norvell, (1992); Hopwood et al., (2007); and Lampard et al., (2011). Specifically, the IPT-ED theory postulates that in response to negative or unsuccessful social interactions, individuals attempt to repair their self-esteem or cope with the negative social evaluation through disordered eating behaviors. Rieger et al. (2010) argued that negative social evaluation triggers disturbances of the self, which is then dealt with through eating disordered symptoms.

There are two disturbances of self that are particularly relevant to eating disorders. The first is negative self evaluation- or negative beliefs about one's worth, which can be either general or specific (Tesser, 2003). The second is poor self-regulation

or the lack of ability to efficiently regulate one's mood and/or behavior (Baumeister and Vohs, 2003). The theoretical model of IPT-ED assumes that eating disordered behaviors function as means to cope with and overcome these disturbances. Reiger et al. relays;

“For instance, the individual might attempt to enhance self-esteem through dieting and other methods of weight control (Cooper et al., 2004), or to escape from aversive states of self awareness through binge eating (Heatherton & Baumeister, 1991), or to avoid these states entirely through self-starvation (Schmidt & Treasure, 2006).”

For eating disordered individuals, poor self-evaluation is often fed by an interpersonal feature- negative social evaluation. Negative social evaluation can be defined as the “...actual or perceived negative feedback regarding one's value to another individual or group” (Reiger et al., 2010). Because negative social evaluation is of a repetitive nature, the relationship between that feedback and eating disordered symptoms very quickly become reciprocal, therefore the evaluation also functions as a maintenance factor for the maladaptive cognitions and behaviors.

There are many sources of information an individual can interpret regarding their social value. These sources can be direct, such as bullying or critical comments, or indirect through social comparison. Individuals may choose to or subconsciously interpret their social standing by comparing themselves to others (Wood & Wilson, 2003). Longitudinal evidence has also examined the tendency of eating disordered individuals to seek out negative social feedback and the effect of this feedback on eating disorder cognitions and behaviors (Joiner, 1997). This study concluded that attention to and searching for negative feedback increased body dissatisfaction, which then increased bulimic symptoms.

One outlet through which these exchanges and social comparisons take place is Facebook. As social media sites continue to increase in popularity, research must look at the implications of this interactive space on various pathologies. Specifically in relation to eating disorders, Facebook provides a space where users can post pictures of themselves; compare their appearance to other peoples' pictures; make comments related to weight, food, and shape; and join groups or support causes related to disordered eating. Most importantly and unfortunately, the site puts negative feedback at the fingertips of the user. As previously noted, comparisons to images and thin confederates can lead to increases in body dissatisfaction- images which are prevalent on a social networking site with over 1 billion users (Smith, 2012).

Beyond appearance related stimuli, social comparisons to features such as career success can negatively impact eating disorder cognitions and behaviors. Li et al. (2010) found that female undergraduates who read profiles describing successful peers endorsed high levels of body dissatisfaction as well as more restrictive eating attitudes than undergraduates who were presented with profiles of unsuccessful peers (Smith et al., 2013). Text on Facebook profiles shares real time updates of engagements, pregnancies, promotions, college acceptances, and so on- all of which may provide material for negative social comparisons.

Research is just beginning to explore the relationship between Facebook, body image, and eating disorder symptoms. Because Facebook provides a platform for social comparisons and negative feedback seeking, it is an especially important area to examine with relation to eating disordered individuals who are already prone to interpersonal dysfunction and low self-esteem. To our knowledge, only one publication has come out

at this time regarding this subject. Smith et al. (2013) investigated the effects of online social evaluation and comparisons on body dissatisfaction and bulimic symptoms in an undergraduate female sample. The investigators hypothesized that a behavior they coined “maladaptive Facebook usage” would lead to increased body dissatisfaction over time and in turn increases in bulimic symptoms. Maladaptive Facebook usage was defined as “...the tendency to seek negative social evaluations and/or engage in social comparisons via Facebook” (Smith et al., 2013).

Smith et al. created a 7-item questionnaire that measured participants’ maladaptive Facebook usage. Participants endorsed their level of agreement with statements such as “I sometimes write negative things about myself in my status updates to see if others will respond with negative comments about me,” and “Reading the status updates of others tends to make me feel down on myself.” Other measures utilized included the Eating Disorder Inventory (EDI; Garner et al., 1983), the Eating Disorder Examination Questionnaire-4 (EDE-Q 4; Fairburn and Cooper, 1993), and the Depressive Interpersonal Relationship Inventory- Reassurance Seeking Subscale (DIRI-RS; Joiner et al., 1992). All measures except the DIRI-RS were assessed at both Time 1 (T1) and Time 2 (T2) of the study. The DIRI-RS measure was used as a covariate taken at Time 1. T1 and T2 were separated on average by 24 days over which individuals used Facebook on their own time.

Smith et al. presented several conclusions supporting a negative impact of maladaptive Facebook use on body dissatisfaction and bulimic symptomology. Maladaptive Facebook usage was found to significantly predict increases in bulimic symptoms even when controlling for variables such as the DIRI-RS covariate, age, and

race ($p < 0.01$). Maladaptive Facebook usage measured at T1 significantly predicted increases in body dissatisfaction (EDI body dissatisfaction subscale, $p = 0.003$; EDE-Q 4 shape concern subscale, $p = 0.01$). Finally, body dissatisfaction was found to fully mediate the relationship between maladaptive Facebook usage and increases in over-eating episodes, and partially mediate the relationship between maladaptive Facebook usage and increases in bulimic symptoms. Findings were consistent with the hypotheses originally proposed.

Although Smith et al. (2013) have shed an initial light on this complex relationships, it is clear there is the need for both replication and expansion of these results. Importantly, a control for Facebook use between T1 and T2 was not presented therefore investigators cannot be sure of how often, with what purpose, and what exactly participants did on Facebook between T1 and T2. Moreover, a more general description of what individuals are comparing to on Facebook pages may provide recommendations for future areas of research as well as implications for treatment providers.

In an age where social media shapes a large part of society's interaction, one cannot ignore the possible negative implications of increased impersonal access between peers that allows for indirect social evaluation and comparison. Beyond decreasing face-to-face socializing, social media sites allow for the instantaneous introduction, investigation, and comparison to a peer. Unlike typical media sources where consumers may observe but not interact with celebrities, social networking sites like MySpace and Twitter encourage a deeper connection between users. Identification with another as well as comparison is much more likely to take place in this context creating more opportunity for peer influence and social comparison whether positive or negative. This study

proposes to examine the relationship between Facebook and eating disordered symptomology in college-aged females.

Statement of the Problem

The continuous infiltration of social media into our daily lives highlights the need to investigate its impacts on mental health. Because of the prevalence of social media use that includes the posting of photos and comments on these images, it is especially important to identify potential side effects of this behavior on body image and eating behaviors. The aims of this study were: 1) How are college-aged females generally using Facebook? 2) Is there an association with body image and eating behavior? 3) Are individuals that endorse higher levels of eating disordered cognitions or behaviors utilizing Facebook differently than their normal peers? 4) Does even a brief exposure to Facebook pages with weight-related comments and explicit body type images of unknown peers impacts personal weight concerns and future behaviors?

It was hypothesized that individuals who were part of a defined high-risk group would be more likely to both compare themselves negatively to the Facebook pages and to endorse more interest in changing diet and exercise behaviors after the exposure. Furthermore, conditions of body types that were underweight, overweight, or athletic/muscular were expected to have more of an impact on comparison and post-exposure change than the condition of normal/average body type. Finally, a discussion of prevention and treatment implications will be presented.

CHAPTER II

METHOD

Sample

Participants were female students at Vanderbilt University in Nashville, TN. Exclusion criteria included that the participant must be able to speak English, currently had a personal Facebook page, and was between the ages of 18-22. Students signed up for participation through a web-based research sign-up program entitled Sona Systems. This system allows students to volunteer for various research projects to receive pay or class credit. The current study was posted under the title “Facebook Use 1” for a value of 1.5 class credits. Because the study aimed to collect an unbiased sample of undergraduate females and possessed an element of deceit, the description visible to student participants on SONA was simply “Study aims to assess the use and impact of Facebook on various psychological measures”.

Data was collected from 149 participants with one withdrawal, resulting in a sample size of $N=148$.

Data Collection

Data was collected starting in March 2012 and was completed in early December 2012. The study began with the collection of baseline data on Facebook use, eating

behaviors, and body image. Previous eating disorder diagnoses were noted through an optional question included in the baseline measure.

Four conditions were created to expose participants to specific body types in the form of photos on a Facebook page. The four body types represented were underweight, overweight, normal/average weight, and athletic/muscular. With over 1 billion users, it can be assumed that all of these body types are represented within the Facebook user population (Smith, 2012). Subjects were randomly assigned to one of the four conditions. Each of the four examples in the condition was represented by two views of the mock individual's Facebook page. One view was the home profile page of the individual and the other was a view of a photo in one of their albums. An example of this structure for a participant assigned to condition 1 is provided in the following figure.

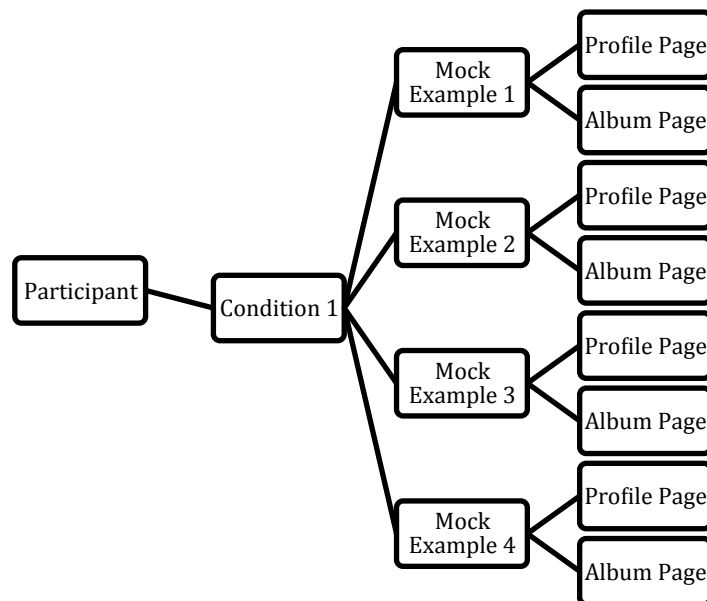


Figure 1. Structural Example of Condition Exposure

In addition to the presentation of specific body types in the mock Facebook images, the exposure also included text related to body satisfaction. Within each condition, participants viewed each of the four language types. All participants regardless of their condition assignment saw examples of each of the four language types representative of levels of body satisfaction. The four language types included positive body talk, negative body talk, neutral or unrelated to body talk, and competitive body talk. Examples of the language types are included in the measures section.

Participants were given specific instructions both verbally and in written form to pay attention to both the images and the text on the Facebook pages. They were told the pages were non-interactive ahead of time. As participants looked at the pages, they were asked to fill out a written questionnaire that required focused attention on the images and text to complete. These questions were not for analysis but rather to ensure the participant's attention on the relevant manipulated items.

Following exposure, participants completed a survey related to the Facebook pages they viewed. Upon completion of this final measure, subjects were debriefed by the experimenter and informed of the true purpose of the study.

Collection Apparatus

Data was collected through two computers in a Vanderbilt University lab. REDCap, a web-based application that allows users to build projects composed of surveys and manage databases, was used to administer the majority of the study. The only portion of the study that was conducted outside of REDCap was the unmeasured

questionnaire used to focus participants' attention on the mock Facebook pages.

Participants were provided with a paper version of this questionnaire and a pencil.

The surveys based in REDCap were formatted by the experimenter except for the Eating Disorders Examination Questionnaire (EDE-Q) 6.0, which was taken from a library of measures open to users on REDCap (Fairburn and Beglin, 1994). Images of the measures as they appeared in REDCap are included within the appendix.

Randomization

Randomized assignment to the four conditions was created through a web-based block randomization program (Urbaniak and Plous, 2011). The input was 50 sets of 4 unique numbers per set ranging from values 1 to 4. Study personnel referred to the output, matching the participant numerical ID (values 1 through 150) to a condition number and would correctly mark this selection within REDCap when they began a participant's data collection. Branching logic programmed in the REDCap project ensured participants saw the assigned condition.

Measures

The study included three phases of measurement; pre-exposure, exposure, and post-exposure. Descriptions of the measurements used in each phase follow and complete copies can be found in the appendix. Of note, the "Maladaptive Facebook Usage"

questionnaire created by Smith et al. 2013 was not published during the data collection portion of this study and therefore was not included as a measure.

a. Pre-exposure

Pre-exposure measurement was composed of two parts, the EDE-Q 6.0 and a survey regarding lifetime Facebook use. The survey regarding lifetime Facebook use was created by the experimenter because of the relative lack of measures looking at Facebook specifically with regards to body comparison. There were 15 items included in this measure. Questions assessed Facebook behaviors such as how often a participant logged in during the day, what technology they used to access Facebook, what they were doing once on Facebook, and how Facebook affected their mood.

The EDE-Q is a self-report version of the Eating Disorder Examination (EDE), which is experimenter-administered. Community norms have been established in both adult and adolescent populations and the EDE-Q has been compared to and found to perform well in most areas with relation to other commonly used measures (Mond et al., 2006; Carter, Stewart, and Fairburn, 2011; Peterson and Mitchell, 2005). The questions asked in the survey relate to the past four weeks (28 days) of behavior and cognition related to eating disorder symptomology. Specifically the measure examines four subscales, eating concern, weight concern, shape concern, and restraint. Examples of questions addressing each subscale as well as subscale descriptions are included in the below table. The EDE-Q as portrayed in REDCap is available in the appendix.

Table 1. EDE-Q Subscales

Subscale	Description	Items	Example Item
Eating Concern	Preoccupation with food, eating, or calories, fear of losing control with eating, eating in secret, guilt about eating, social anxiety about eating	#7 9 19-21	7. Has thinking about <u>food, eating or calories</u> made it very difficult to concentrate on things you are interested in (for example working, following a conversation, or reading)?
Weight Concern	Importance of weight, dissatisfaction with weight, desire to lose weight, reaction to prescribed weighing, preoccupation with shape or weight	#8 12 22 24 25	12. Have you had a strong desire to lose weight?
Shape Concern	Desire for flat stomach, importance of shape, fear of weight gain, preoccupation with shape or weight, discomfort seeing body, feelings of fatness, avoidance of body exposure, importance of shape	#6 8 10 11 23 26-28	23. Has your shape influenced how you think about (judge) yourself as a person?
Restraint	Restraint over eating, avoidance of eating and food, dietary rules, desire for empty stomach	#1-5	1. Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?

b. Exposure

During the exposure, participants completed a written questionnaire that was not scored. The purpose of this questionnaire was to orient the participants’ attention to both the images and text on each mock Facebook page. Questions were answered for each of the four examples viewed and responses were open-ended. The three questions were;

- a. Slide 1: What color top is this person wearing?
- b. Slide 2: What emotion do you think this individual is experiencing?
- c. Overall: How would you describe the body type of this person in a few words?

c. Post-exposure

The post-exposure measure was composed of two parts and experimenter-created consisting of 20 total items. The first portion of the survey related directly to the pages

the participants had just viewed during the exposure portion of the study. This part of the measure asked questions such as whether or not a participant would change eating or exercise behavior after viewing these pages and whether they compared themselves to the individuals presented. The second portion related more generally to the participant's life and asked questions that could not be asked during the pre-exposure measure to avoid creating bias or presupposing participants' responses. Examples questions from this portion include; "Are you dissatisfied with your weight in your Facebook pictures?" and "Have you ever seen 'Pro Mia' or 'Pro Ana' information on Facebook?"

Exposure

Participants were exposed to mock Facebook pages created by the experimenter.

Pages were created using the following programs;

- FireBug to inspect the HTML code of real Facebook pages in order to match font color, size, and formatting
- Photoshop and InDesign to manipulate screen shot of actual Facebook pages- images, text, and names on each page were changed.

Photographs for the pages were collected from volunteers outside of the Nashville and Vanderbilt communities or from the non-profit Creative Commons search engine.

Photographs were selected to portray one of the four specific body types presented. The four body types included athletic/muscular, average/normal, overweight, and underweight. Both images and language was specifically manipulated on the pages. Four examples of each body type were nested in the condition and each example portrayed one

of four different language types. The four language types were body praise, athletic focus, negative body, and none. “None” was defined as no comments related to body image, weight, or eating behaviors. Examples of the mock Facebook pages and images for the various body types can be found in the appendix.

Table 2. Condition Levels

IMAGES					L A N G U A G E
	Level 1	Level 2	Level 3	Level 4	
Level 1	Normal None	Overweight None	Athletic None	Underweight None	
Level 2	Normal Body praise	Overweight Body praise	Athletic Body praise	Underweight Body praise	
Level 3	Normal Athletic focus	Overweight Athletic focus	Athletic Athletic focus	Underweight Athletic focus	
Level 4	Normal Negative body	Overweight Negative body	Athletic Negative body	Underweight Negative body	

Table 3. Exposure Language Examples

LANGUAGE EXAMPLES	
Language Type	Example
None	“So good to see you last night! hope to see you at the concert!”
Body Praise	“Loved the outfit you wore last night! Showed off those gorgeous collarbones!”
Athletic Focus	“Competition ain’t got nothing on those abs girl!”
Negative Body	“Ughhh we need to go on a diet! I hate this picture of us!”

Data Analysis Plan

The statistical package SPSS version 21.0.0 was used for all data analysis. Data was exported through REDCap to the statistical software. Prior to running statistical tests, various variables were computed from the scores including EDE-Q subscale scores and subset score for both surveys utilized at pre and post exposure.

Because this study set out not only to test the impacts of a brief exposure but also to describe general characteristics of Facebook use in college-aged women as related to comparison and body image, many of the questions can be addressed through descriptive statistics and frequencies. Percentages were assessed to depict sample qualities such as how often young women are accessing Facebook, if they like the way they look in their Facebook photos, and what they do the majority of the time when on Facebook.

The sample was analyzed to determine clinical significance in eating disordered behavior based on the EDE-Q. A score of four or above as a cutoff point for clinical significance on any of the four EDE-Q subscales and the global scales was utilized based on previous research standards (Luce et al.). Using this designation, the count values and frequencies commands in SPSS were used to determine how many cases within the current samples were considered clinically significant for each of the subscales.

Table 4. Comparison to Luce et al. 2008 Sample of Clinically Significant Percentages

Subscale	Luce et al. (N=723)	Current Data (N=148)
Restraint	7.9%	7.4%
Eating Concern	2.2%	.7%
Shape Concern	14.8%	14.9%
Weight Concern	10.2%	10.8%
Global	5.6%	2.7%

The current data set presented slightly lower percentages of clinical significance except for the shape and weight concern subscales. These differences may be explained by sample size, but were not considered to impact the overall goals of this study.

Once investigators had an overview of the clinical significance within the sample, several methods were considered to form two groups with relatively similar cell sizes to best serve the two-way ANOVA procedure. Because the cell sizes using the 4-point cutoff would not support the ANOVA procedure, we decided to use an operational cutoff of 1 standard deviation above the mean for each EDE-Q subscale. Investigators created a summed variable based on the 0,1 coding for non-significant or significant respectively on each subscale. The histogram of this variable is shown below.

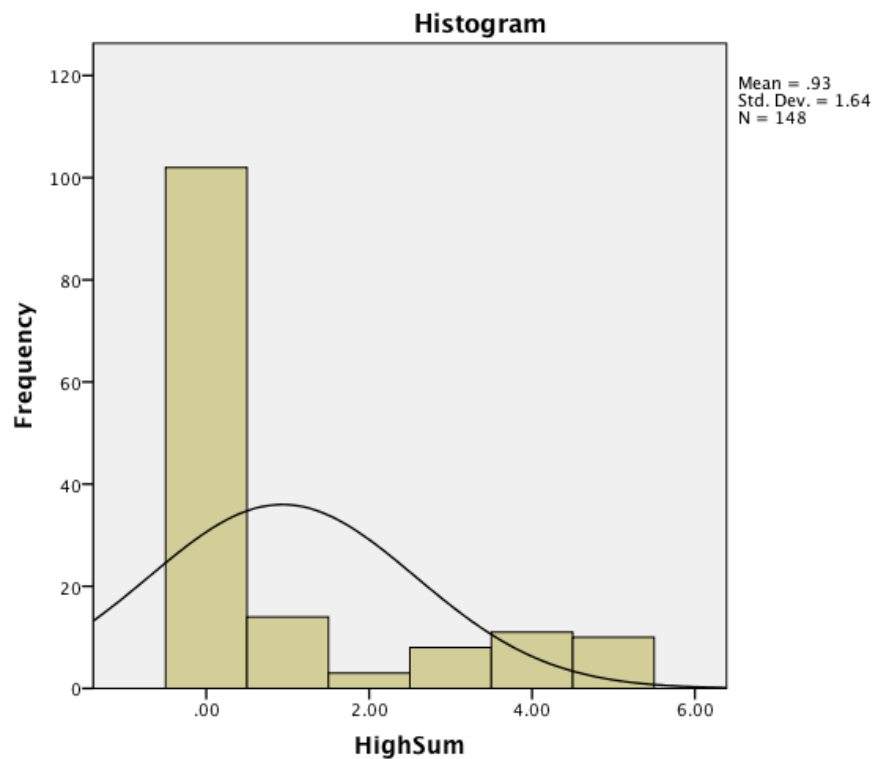


Figure 2. Histogram of Summed Risk Scores

To be considered a member of the “High-Risk” category, an individual had to score at least 1 standard deviation about the mean on any of the subscales. This resulted in a total of 102 low-risk participants and 46 high-risk participants as well as the following cell sizes for each group nested within each condition. This format for group division produced acceptable cell sizes to move forward with analysis.

Table 5. Condition by HighLowCategory Crosstabulation

		HighLowCategory		Total
		.00	1.00	
condition	1 athletic/muscular	21	13	34
	2 normal	28	11	39
	3 underweight	29	8	37
	4 overweight	24	14	38
Total		102	46	148

Once these two groups were determined, two-way between groups analysis of variances (ANOVAs) were utilized to test for main effects of both independent variables as well as an interaction effect. Two-way ANOVAs assume the population from which the samples were obtained must be normally or approximately normally distributed, samples must be independent, variances of the populations must be equal- homogeneity of variance, and the groups must have a relatively similar sample size.

The two independent variables under consideration were condition assignment and high or low risk category based on the EDE-Q resulting in a two by four design. An interaction effect assesses whether the effect of one independent variable on the dependent variable depends on the level of the second independent variable. The

dependent variable in this study is the post-exposure subset score relative to the question under consideration.

CHAPTER III

RESULTS

Pre-Exposure – Descriptive Analysis

Frequencies and descriptive statistics were utilized to create a general overview of Facebook behaviors and cognitions related to use. Frequency tables are presented with valid percentages, which are percentages taken from all the available responses rather than including missing values. Descriptive statistics are also presented where relevant.

a. Facebook Access

One of the important subjects evaluated in the pre-exposure measure was how often and through what means young women are accessing Facebook. Results highlighted the frequency with which this population interacts with social media, specifically Facebook. The majority of participants logged in to Facebook at least once every day of the week, and over 1/3 reported always being logged in.

Table 6. Facebook Usage Time

	Average Number of Days /7 Checked Facebook	Times Per Day
Mean	6.79	8-10 times per day
Mode	7 (130/148 participants)	Always Logged In (54/148 participants)
Minimum	3	0-2 times per day
Maximum	7	Always Logged In

With such high usage levels, it is also important to note how this population accesses Facebook. 55.4% of respondents replied “Anything I can”, 33.8% use their computers, and 10.8% use their cell phones.

b. Facebook Behaviors

Facebook is often advertised as a way to connect with old friends, to publicize events, update others on your life, or raise awareness about a cause. When asked to choose a response that best described why they used Facebook, 64.9% of respondents replied, “To keep up with peoples’ lives”. The choices of “for work or special interests” and “to meet people” received zero responses. When asked about what they were doing when on Facebook, only 1 participant responded that they were publicizing an event while 80.3% replied “Stalking photos/people”. The term “stalking” is used colloquially among Facebook users to describe the behavior of covertly obtaining information about another individual through Facebook. Figure 3 presents a visual representation of the behaviors participants endorsed on Facebook. Notably, results point to behavior oriented to comparison in looking at others pages.

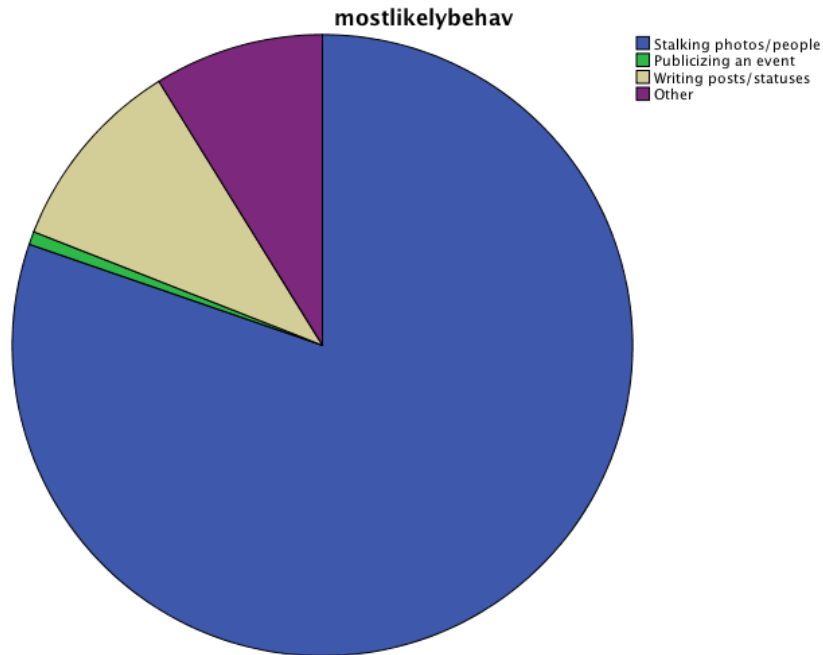


Figure 3. Behaviors on Facebook

Although Facebook “stalking” has been considered beneficial in some situations, such as companies investigating the background of a potential employee, it is clear that college-aged females are not employing Facebook for business, scholarly, or networking needs.

c. Judgment and Comparison

If college-aged females are looking at their peers photos, statuses, and comments for the majority of the time when they are on Facebook, how often are they comparing themselves to these pages or making judgments about others? More importantly, does that behavior influence their mood state?

i. Do you make judgments (positive or negative) about others based on their Facebook pages?

A startling 98.7% of the sample is making judgments at least some of the time about others based on their Facebook page. Figure 4 presents the breakdown of this percentage.

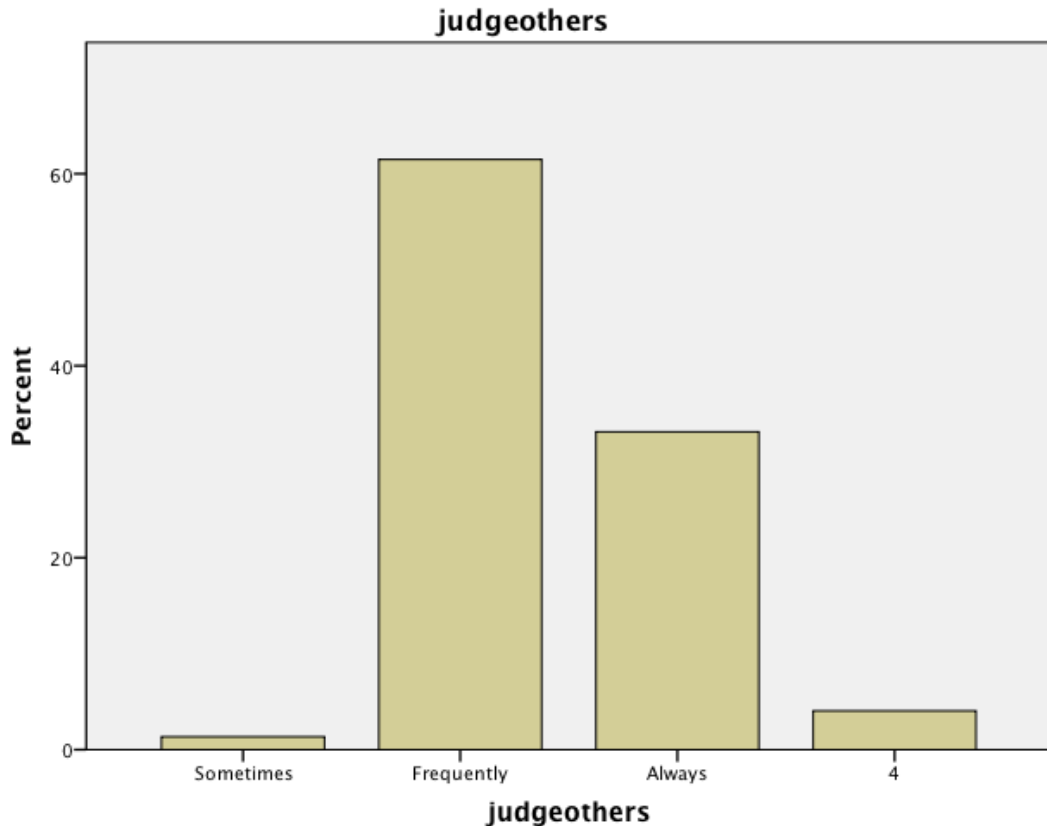


Figure 4. Percentages of Participants who Judge Others on Facebook

ii. Do you think about people judging you based on your Facebook?

In addition to judging others based on Facebook, college-aged females are also spending time wondering whether others are judging them based on their Facebook page. 57.4% of participants thought about this frequently. This study did not address whether this thought process caused anxiety, depression, or other emotional reactions within young women

however in speaking with the investigators many participants relayed some form of cautionary behavior related to Facebook. For example, some said that they always made sure they liked a photo of themselves on Facebook before they allowed it to be tagged or were very careful with what they posted in a status or comment because of how others would perceive it.

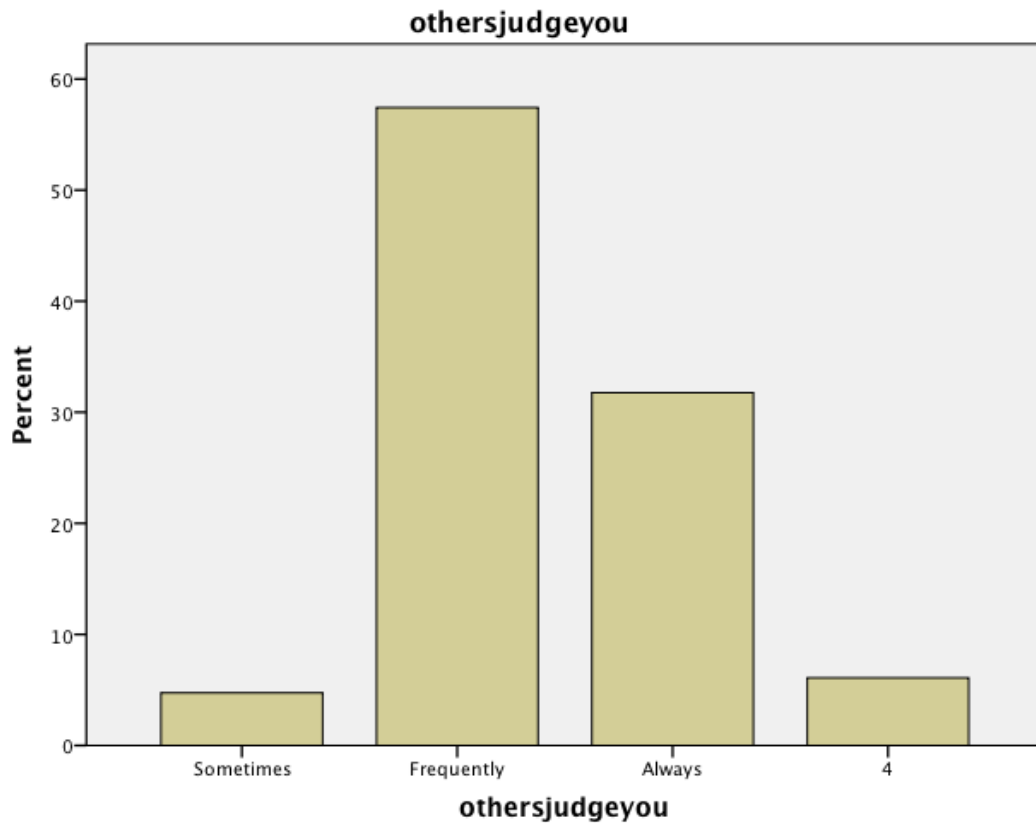


Figure 5. How Often Participants Think About Others Judging

iii. Do you compare yourself to others on Facebook?

87.8% of the sample replied that they compared themselves to others on Facebook at least some of the time. Of that percentage, about 33% compare themselves “Frequently” or “Always.” This result will be elaborated on in the discussion section as it is a key point

to highlight for future research interests. Figure 6 presents the frequencies related to this result.

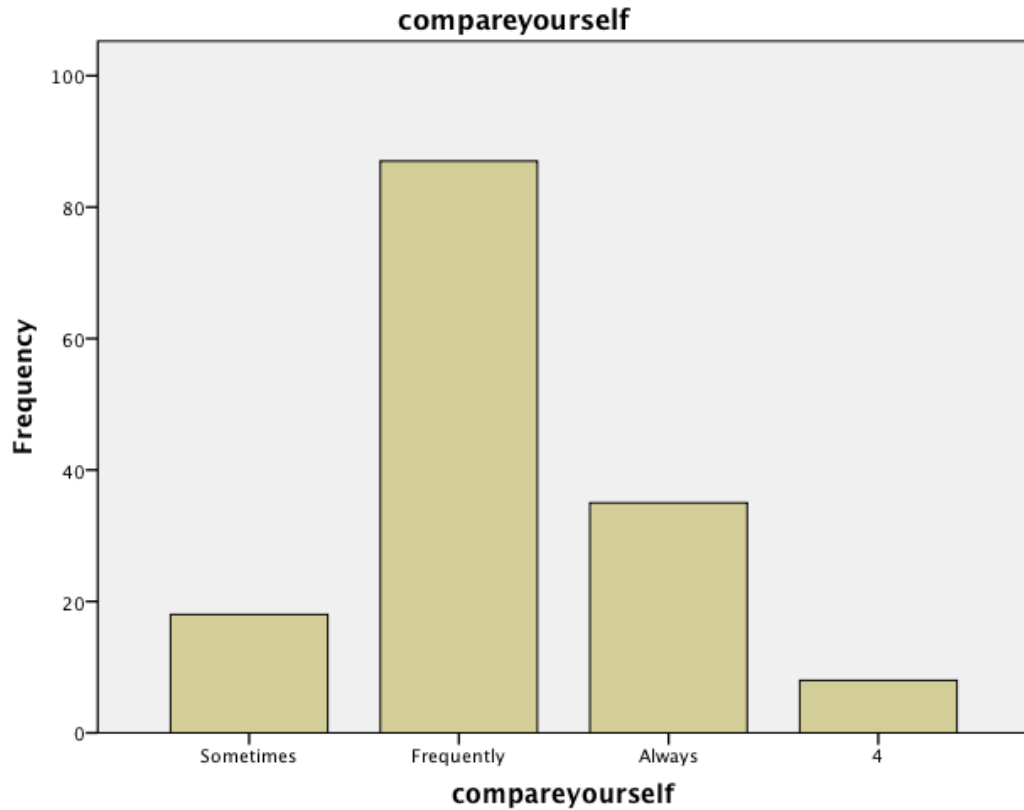


Figure 6. Endorsed Frequency of Comparison

iv. What are you most likely to compare? (N=147)

Responses to this item indicated that 46.3% of comparisons young women are making on Facebook are based in attractiveness. This supports the study premise that Facebook functions as a venue for these comparisons to be made and that the potential exists in this social media form to negatively impact body image. Figure 7 is a visual representation of what the sample compared to.

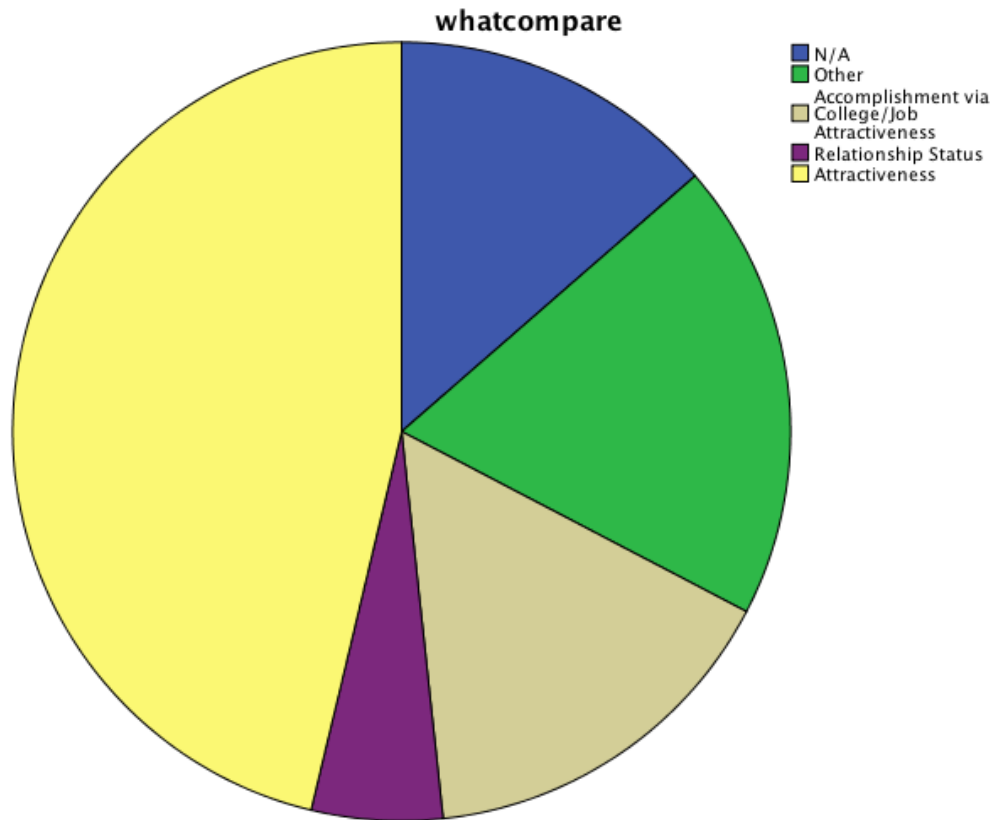


Figure 7. Object of Comparison

v. Usually does Facebook improve or worsen your mood?

39.2% of the sample stated that using Facebook typically worsened their mood, 4.7% said it improved their mood, 6.8% said it depended on the situation, and 49.3% said it had no effect. Further investigation is needed in to this question, as participants may not recognize the impact Facebook has on their mood both short-term and long-term. What we can say is that even just in response to a singular question, close to 40% of college females say that Facebook has a negative impact on their mood.

Group Comparison

Two different two-way between groups ANOVAs were performed to analyze the potential differences between the high and low-risks groups across each condition. The two dependent variables were a post exposure score measuring comparison and a second post exposure score measuring anticipated change. These scores were created by summing scores from relative items on the post-exposure measure.

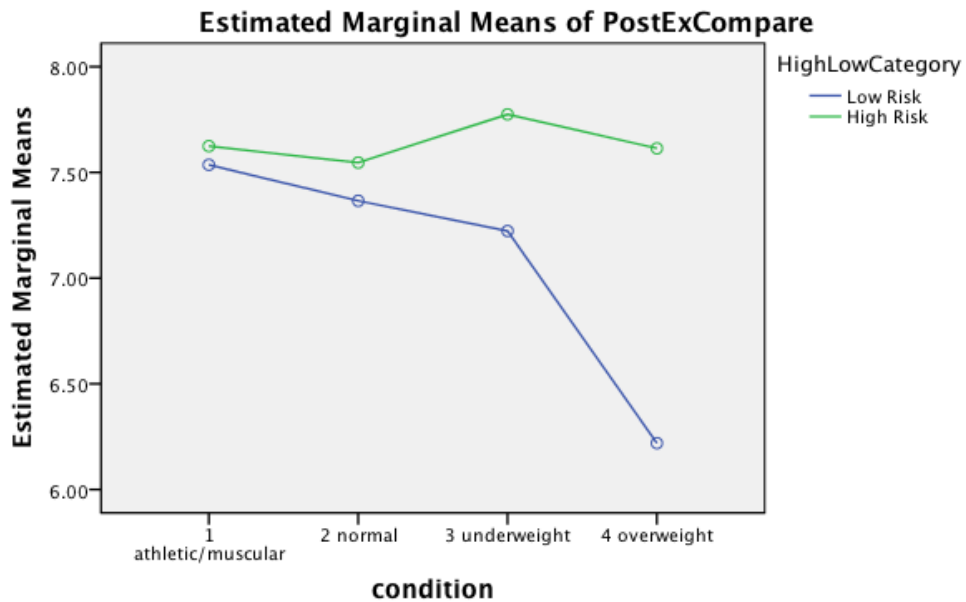
Two by Four ANOVA-Post Exposure Comparison

The post-exposure comparison score assessed how often participants compared themselves to the images presented on the mock Facebook pages, the positive or negative nature of their comparisons, how they felt about their body after viewing and potentially comparing to the pages.

A two-way between groups ANOVA was conducted to explore the impact of high-low risk category and condition on levels of the post-exposure comparison variable. The interaction effect between condition and risk group was not statistically significant, $F(3,137) = .827, p = .481$. There was also no significant main effect for either condition, $F(3,137) = .596, p = .619$, or risk category $F(1,137) = 3.172, p = .077$.

Because the significance level for risk category ($p = .077$) was close to the .05 cutoff used for determining significance of a main effect, a covariate was added to the ANOVA. The addition of a covariate is also considered especially beneficial in studies with small sample sizes or only small to medium effect sizes (Stevens, 1996). A variable was created that accounted for a participant's tendency to compare or make judgments in

general on Facebook as measured by the pre-exposure survey. Although it would be expected that this covariate correlates significantly with the dependent comparison measure, the covariate was not significant ($p = .117$) and its inclusion resulted in an even less significant main effect for risk category ($p = .150$).



Covariates appearing in the model are evaluated at the following values: PreExComapreTendency = 10.4690

Figure 8. Estimated Marginal Means with Covariate Inclusion for Comparison

Two by Four ANOVA-Post Exposure Change

The post-exposure change score assessed if participants were likely to change their diet and exercise regime after viewing the pages and how many changes they would make. For example, if a participant said that yes they would change their diet, they then were asked to select each item they would change from choices such as “Restrict intake”,

“Count calories”, or “Choose more healthy options”. Each item selected counted towards their overall change subscale score.

A two-way between groups ANOVA was conducted to explore the impact of high-low risk category and condition on levels of the post-exposure change variable. Once again, the interaction effect between condition and risk group was not statistically significant,

$F(3,140) = .467, p = .705$. In contrast to the post-exposure comparison variable, a main effect was found for both condition and risk group. The resulting values for the main effect of condition were $F(3,140) = 4.458, p = .005$, which is a medium effect size using Cohen’s criterion (1988) comparison value of .06 (partial eta squared = .087). The resulting values for the main effect of risk category were $F(1,140) = 7.288, p = .008$, which is close to a medium effect size (partial eta squared = .049). These results will be expounded upon in the discussion section of this paper.

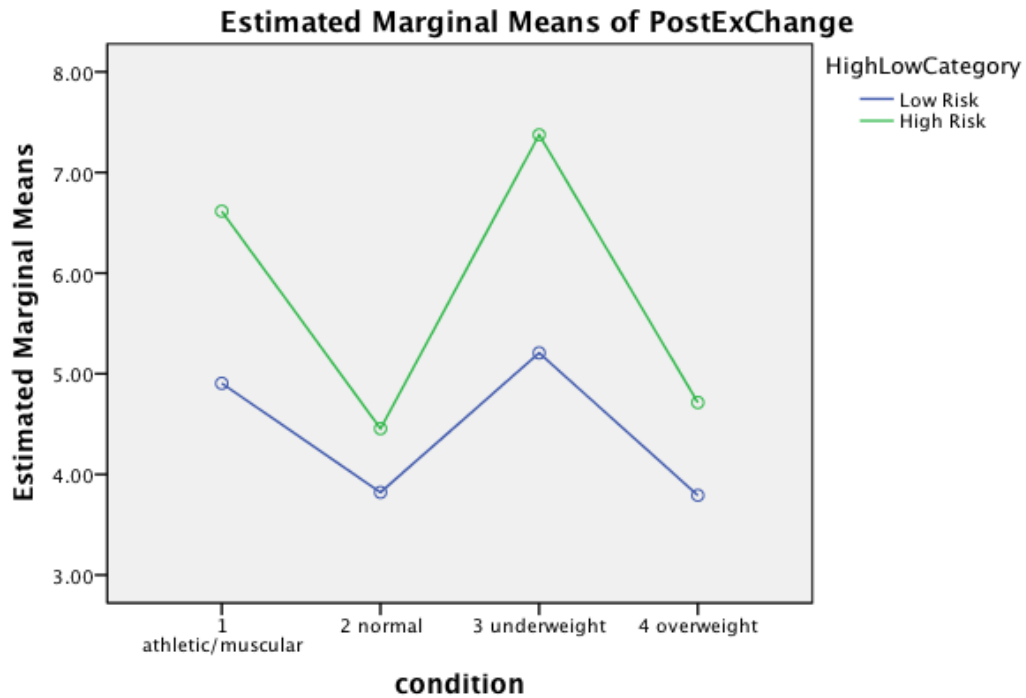


Figure 9. Estimated Marginal Means for Change

Post-Exposure - Descriptive Analysis

Descriptive analyses from the post-exposure measure focused on specific behaviors on and beliefs about Facebook related to body image and eating disorders. These questions were reserved for the post-exposure measure so as to avoid potential preemption of the exposure stimuli.

a. Eating Disorder Information on Facebook

i. Have you seen information about eating disorder awareness on Facebook? (N=145)

A reported 80.7% of participants had not seen information about eating disorder awareness on Facebook while only 19.3% had. These numbers relay a relative lack of

awareness information available on Facebook. This will be elaborated on in the discussion, but with the frequency of which young women are on Facebook we may be underutilizing an efficient way to pass along awareness and support information.

ii. Have you ever seen “Pro Mia” or “Pro Ana” information on Facebook? (N=145)

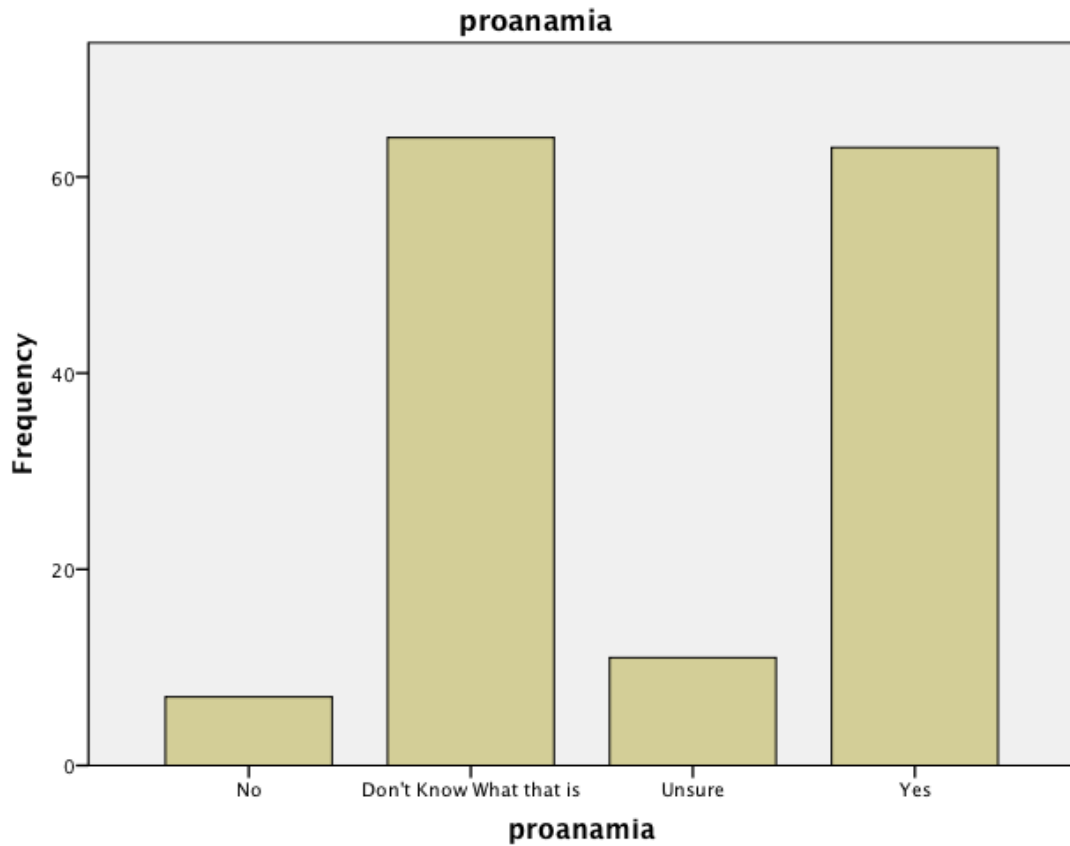


Figure 10. Frequency who have seen Pro-Ana or Pro-Mia Information on Facebook

As shown in Figure 10, only 4.8% of participants stated that they had seen pro-eating disorder information on Facebook, 44.1% had not, and 43.4% did not know what this type of information was. While the previous question provided disheartening information about the lack of awareness information circulating on Facebook, this item shed some

positive light on the eating disorder information present on Facebook. “Pro Mia” and “Pro Ana” refer to individuals or groups that accept bulimia nervosa or anorexia nervosa as lifestyles rather than an illness. The online presence of these groups has continued to grow and more recently expanded to social media. The web forums provide an outlet where users post tips, weight updates, thinspiration (thinspo), fitspiration (fitspo) and general support for eating disordered behavior (Borzekowski et al., 2010). Users also compete in categories such as weight loss, calorie consumption, and body measurements. The environment is non-judgmental and ranges in term of severity, with some sites posting information for those who decide they want to pursue treatment and others that denounce medical treatment for what they believe should be respected as a desirable lifestyle choice.

b. Interactions with Friends (N=145)

i. Are you friends with someone on Facebook who you know or suspect to have an eating disorder?

The National Institute of Mental Health has stated that one in five women struggle with an eating disorder or disordered eating. It is not surprising that over 80% of participants replied that they were friends with someone on Facebook who they knew or believed to have an eating disorder (82.8% yes, 17.2% no). However what is important to take from this finding is the prevalence of opportunities for an individual to “stalk” a friend on Facebook that struggles with disordered eating. Whether or not this struggle is apparent in their photos or page commentary cannot be determined from the assessments under discussion but we can at least conclude that the opportunity is there.

ii. Have you or your friends ever talked about individual weights or shapes on Facebook?

iii. Have you or your friends ever talked about dieting on Facebook through wall posts or picture comments?

For a public forum, that depending on individual privacy restriction is open to just about anyone with an email address, the percentages of participants who speak with friends on Facebook about weight and dieting were high. 41.2% of participants have talked about individual weights or shapes on Facebook through wall posts or picture comments and 28.3% have talked about dieting on Facebook through wall posts or picture comments.

c. Dissatisfaction/Inadequacy (N=145)

i. Are you dissatisfied with your weight in Facebook pictures?

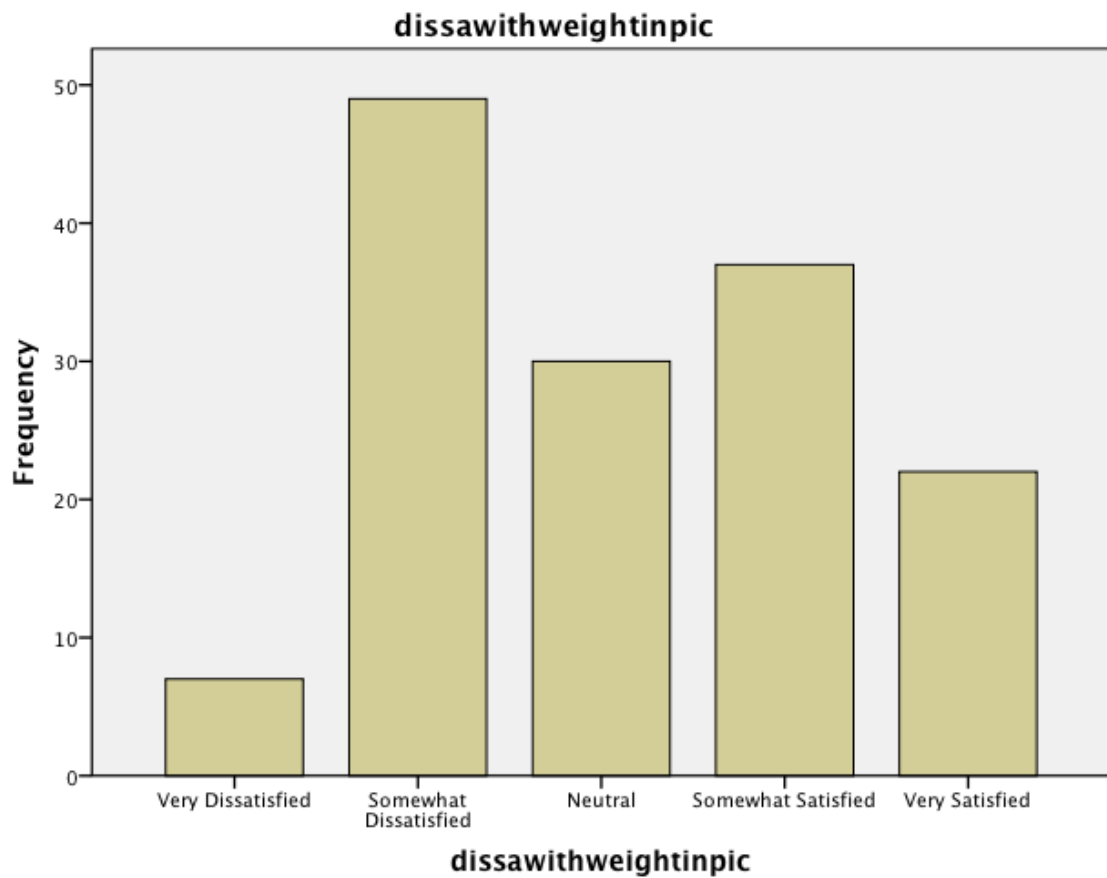


Figure 11. Weight Dissatisfaction in Facebook Pictures

ii. Do you ever feel inadequate in appearance to your friends on Facebook when looking at their pictures?

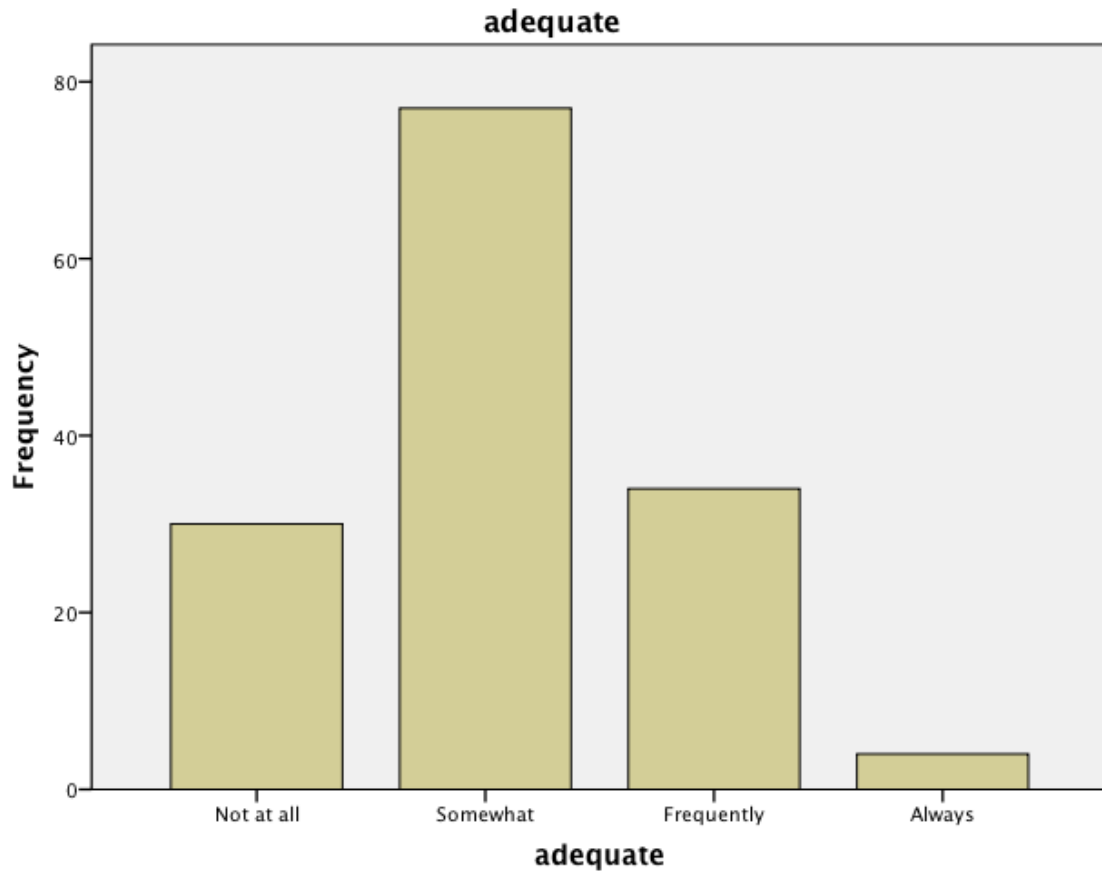


Figure 12. Feeling Inadequate Based on Appearance Comparison to Friends

33.8% of participants are somewhat dissatisfied with their weight in Facebook photos and 4.8% are very dissatisfied. In addition, 26.2% feel in adequate in appearance in comparison to their friends on Facebook frequently or always. Both of these questions highlighted the high levels of body dissatisfaction found in relation to Facebook both based in comparisons and self-evaluation. Although these results could simply show a high level of body dissatisfaction in general and not unique to social media, in the context

of the fact that individuals are making comparisons on Facebook and have limitless opportunities to do so, they become more worrisome.

d. Belief in Impact

i. Do you believe Facebook can impact a female's body image and self-esteem?

Over 75% of the sample endorsed the belief that Facebook impacts a female's body image and self-esteem frequently or always. In debriefing participants regarding the true nature of this study, experimenters had many conversations about personal experiences or knowledge friends who were impacted negatively by comments or photos on Facebook. Participants were enthusiastic to share their frustrations regarding the issue.

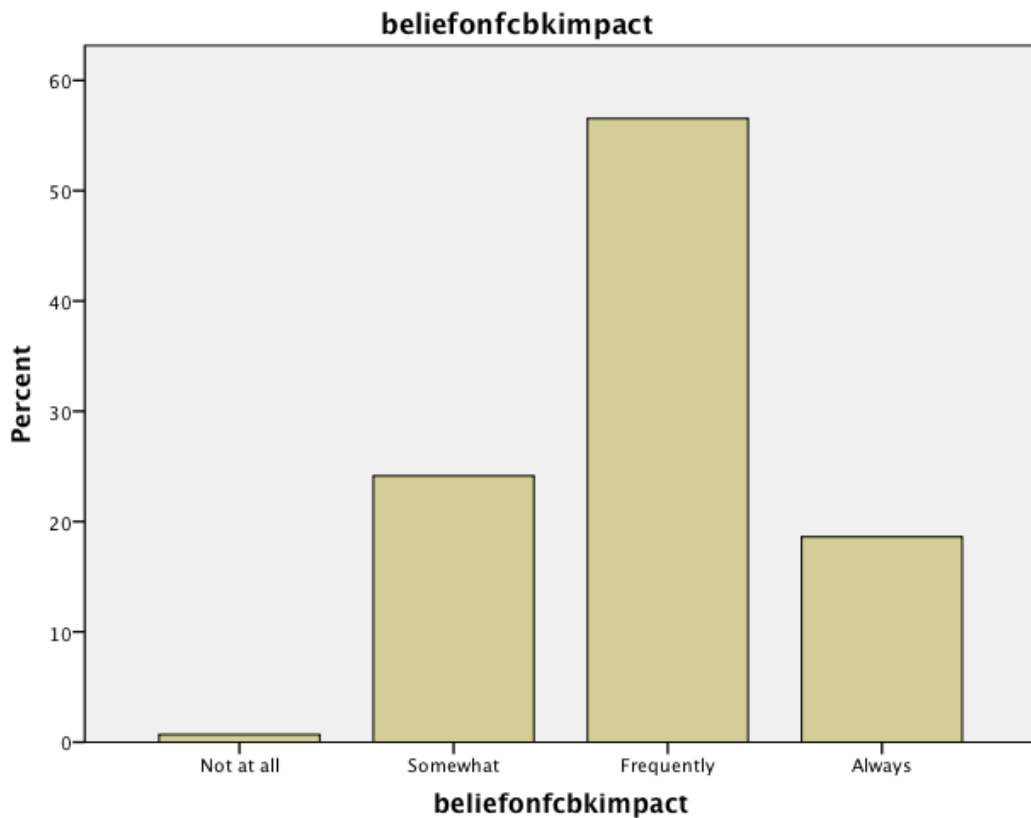


Figure 13. Belief that Facebook can Impact Body Image and Eating Behavior

CHAPTER IV

DISCUSSION

Implications

Many of the results presented simply help to give a descriptive overview of typical Facebook behavior in relation to social comparison and body image. These results provide a framework for future research directions and a better understanding of how Facebook is being utilized within a population that presents with significantly greater numbers of eating pathology (Hudson et al., 2007).

Some of the specific results from the descriptive analysis warrant further discussion with regards to the aims of this study. In examining social-media based social comparisons, we found that 87.8% of participants were comparing themselves to others on Facebook and that 46.3% of these comparisons were based on attractiveness as well as another 15.6% based on accomplishment and success. Under the premise of the current study, this is worrisome behavior in a population already at high-risk for eating disordered behavior. Young females are not only comparing themselves to those they see in person and in the media, but now have thousands of profiles at their disposal to compare themselves to. One in seven individuals globally use Facebook, meaning that when young women play the “comparison game”, there will always be someone skinnier, prettier, more successful, farther in life, and so on (Smith, 2012). As relayed in the introduction of this paper, even comparison to success levels contributes to increased body dissatisfaction and restrictive eating attitudes (Smith et al., 2013).

Results regarding friendships and communication on Facebook about eating and shape-related subject matter further highlight the potential negative impact of social media on body image and eating behavior. 41.2% of participants had spoken on Facebook with friends about weight or shape and 28.3% had discussed dieting. This talk was not conducted through private messaging but was publicly conducted through wall posts or photo comments. Because there is not currently data to compare these findings to, we cannot establish the significance of these results. What can be concluded is that college-aged females are using Facebook to communicate about these topics. The written communication paired with the ability to upload photos on Facebook potentially has more of an impact on body image than text communication alone. Moreover, these are not private conversations between two individuals. They are accessible to most anyone within the individuals' friend group. Meaning that, a comment about going on a juice detox that was made to one friend suddenly appears on the newsfeeds of 500 others. Further research is needed to determine the frequency and nature of this communication along with its impact-power related to other forms of communication.

Complicating the results regarding communication, 82.8% of the sample is friends with someone on Facebook who they know or suspect to have an eating disorder. While this statistic may not be problematic for healthy young women, for individuals who have struggled with body image, eating, or even those in recovery, Facebook may become just another magazine with stick-thin models or stories of weight loss. The difference is, these individuals are friends rather than unknown models or famous actresses. Facebook features such as "Timeline" provide a "history" of an individual's image- including shape and size. While some family members may appreciate this feature to see how much little

Jenny has grown, as an example an individual who struggles with eating disordered behavior may hate the fact that she has gained weight from being sent to treatment and it shows in her Facebook photos. In another hypothetical scenario, an individual may subconsciously witness the continued progression of weight loss of a friend, potentially triggering her own insecurities.

Another important consideration related to friends on Facebook is people from treatment staying in touch, posting pictures, making group, and even venting about treatment protocol. While at times this can provide support and empathy, a necessary future direction will be to assess the potential negativity of these interactions. Specifically, individuals may be triggered by each other's relapse, noted weight differences, or perceived state of recovery. This study did not assess this topic but it will be an important direction for future investigation.

The group comparisons conducted in this study represent a very surface level look into an area of research demanding further attention. In contrast to original hypotheses, high-low risk group membership did not have a significant impact on the post-exposure comparison measure even with the inclusion of a covariate measuring pre-exposure tendencies. This may be explained by the brief exposure time, the non-interactive nature of the mock Facebook pages, and the wider criteria utilized to form a sufficient high-risk group. The hypothesis regarding post-exposure change was confirmed, individuals in the high-risk category, or those who endorsed more eating disordered beliefs and behaviors, endorsed a significantly higher interest in changes to their diet and exercise after viewing the pages as well as a higher number of items they would change. This supports and contributes to the findings of Smith et al. 2013, although bulimic symptoms were not

directly measured, our results show that comparison to Facebook pages leads to action-oriented cognitions and behaviors in this population. For some individuals, these action items may be positive and healthy, such as an interest in getting more exercise or trying a new recipe posted on someone's Facebook page, but for those at high-risk for eating disordered behavior these changes may involve an increase in symptoms or behavior that maintains the eating disorder such as dieting.

It is important to note that this study does not propose to denounce Facebook or social media as inherently negative. The attempt is to explore and highlight the potential risks and consequences for individuals with eating disorder or those in a high-risk category. Clearly, banning the use of social media among this at risk population is both unfounded and irrational. However, there are implications on individual, prevention, and treatment levels from the conclusions of this study. On an individual level, this study shows the potentially negative impact of Facebook use. Individuals can be more aware moving forward to consciously attempt to stop themselves from making comparisons to others, to try to utilize Facebook for more productive means, and to be aware that what they post may be influencing the life of someone else in a negative way. As a whole, we can influence the information posted on Facebook to a positive end by avoiding "fat talk", bullying, and critical commentary. Even on an individual level, both this awareness and behavior moving forward may aid in prevention.

Treatment centers and professionals should be cognizant of these behaviors and the impact of social media on body dissatisfaction and eating disordered variables. Treatment centers may want to prohibit the use of Facebook in a residential setting and ask residents to be aware of what they share in this public forum. Providers can also

encourage and discuss positive use of Facebook and the avoidance of maladaptive behaviors. Finally, just as treatment professionals encourage those attempting recovery to get rid of old clothes that may no longer fit, the scale in the bathroom, or the relationships that are detrimental to recovery efforts- it may be useful to delete old photos on Facebook representing certain periods of health and weight status.

Limitations

There are a few limitations to note present in this study. As previously stated, because this a very new area of research novel measures were utilized. With continued work in this subject area, it is hoped that these measures will be validated and others created. Along with this, the relative lack of information on this topic required a very broad descriptive study to provide a basis for future work. It is our hope that this will open the door to a limitless set of questions regarding this relationship.

A second limitation of note was the exposure time and stimuli used. Participants viewed a total of 8 pages each and because they only needed to answer simple questions regarding the page, exposure times ranged depending on how fast questions were interpreted and answered. Furthermore, the pages were non-interactive which is not very representative of real Facebook usage where individuals can click through hundreds of images and links. The controlled nature of exposure stimuli allowed us to ensure the presentation of body-related text and images and although in some ways it was beneficial to provide stimuli rather than measure individuals based on their personal Facebook use, it will be necessary to develop a more realistic way of assessing comparison.

Finally, the study did not assess the differences between Facebook-based comparisons and comparisons made outside of this context. This will be an important future direction of study.

Future Directions

As mentioned in the limitations section of this study, it will be important moving forward to examine the comparisons and negative social evaluation made on Facebook to those from other contexts. The impacts of comparisons made through social-media may be more impactful and powerful than those from non-social media sources such as magazines or movies. Because of the assumed more intimate connection an individual has with a “friend” on Facebook versus a model in a magazine, these social evaluations and comparisons may have more value to the individual making them. It will be interesting to see if the comparisons through Facebook are unique in relation to those outside of social media.

A second area of interest is the further investigation of Facebook behaviors in those who purposefully seek negative social evaluation and feedback. Because of the convenience and large number of sources Facebook provides for feedback and comparison, its use may be an especially risky activity for those prone to seeking that negative appraisal. Furthermore, it will be necessary to look at how and to what end these individuals interpret the negative feedback. For example, is this group using Facebook to search out negative feedback to motivate starvation habits or searching out individuals skinnier than themselves to inspire weight loss. There are many possibilities here for future research directions.

Finally, this study looked at the comparison between a high-risk and low-risk group but not the differences between a clinical and nonclinical population. Because our criteria was widened to provide a sufficient sample size in the high-risk category, comparisons between clinical and normal samples may show greater significance in their differences.

Conclusions

In conclusion, this study provides preliminary examination of the relationship between Facebook and body image as well as a general picture of Facebook use among a population at risk for eating pathology. The conclusions add to the literature that social media can negatively influence mental health and points to the need for future attention to eating disorder related variables specifically because of the large number of opportunities for social comparison and evaluation on Facebook. Results suggest implications on multiple levels to target potentially negative use of Facebook and create an awareness of the consequences of these behaviors.

APPENDIX

EATING QUESTIONNAIRE

EATING QUESTIONNAIRE Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all the questions. Thank you. Questions 1 to 12: Please choose the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only. On how many of the past 28 days.....

1. Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

4. Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

5. Have you had a definite desire to have any empty stomach with the aim of influencing your shape or weight?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

6. Have you had a definite desire to have a totally flat stomach?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

7. Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

8. Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

9. Have you had a definite fear of losing control over eating?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

10. Have you had a definite fear that you might gain weight?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

11. Have you felt fat?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

12. Have you had a strong desire to lose weight?

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

13. Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?

14. On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?

15. Over the past 28 days, on how many DAYS have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?

16. Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?

17. Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?

18. Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat, or to burn off calories?

Questions 19 to 21: Please choose the appropriate number. Please note that for these questions the term "binge eating" means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

19. Over the past 28 days, on how many days have you eaten in secret (ie, furtively)? ...Do not count episodes of binge eating

- 0 - No Days
- 1 - 1-5 days
- 2 - 6-12 days
- 3 - 13-15 days
- 4 - 16-22 days
- 5 - 23-27 days
- 6 - Every Day

20. On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight? ...Do not count episodes of binge eating

- 0 - None of the times
- 1 - A few of the times
- 2 - Less than half
- 3 - Half of the times
- 4 - More than half
- 5 - Most of the time
- 6 - Every time

21. Over the past 28 days, how concerned have you been about other people seeing you eat? ...Do not count episodes of binge eating

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

Questions 22 to 28: Please choose the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

22. Has your weight influenced how you think about (judge) yourself as a person?

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

23. Has your shape influenced how you think about (judge) yourself as a person??

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

24. How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

25. How dissatisfied have you been with your weight?

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

26. How dissatisfied have you been with your shape?

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

28. How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?

- 0 - Not at all
- 1
- 2 - Slightly
- 3
- 4 - Moderately
- 5
- 6 - Markedly

What is your weight at present? (please give your best estimate.)

What is your height? (Please give your best estimate.)

If female: Over the past three-to-four months have you missed any menstrual periods?

- Yes
- No

If so, how many?

Have you been taking the "pill"?

- Yes
- No

Pre-Exposure Measure

Pre-exposure

Instructions: The following questions are related to your lifetime use of Facebook. Please read each question carefully and answer all questions by choosing the option that best applies to you.

Out of the 7 days of the week, how many days on average do you check Facebook?

-
- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7

On average how many times per day do you log in to Facebook?

- 0-2
- 3-5
- 6-8
- 9-10
- Always logged in

What technology do you use to access Facebook?

- Computer
- Cell phone
- Anything I can

On a scale of 1- 7 with 7 being the highest level of restriction, how would you rate your personal Facebook page in terms of privacy?

- 1
- 2
- 3
- 4
- 5
- 6
- 7

On a scale of 1-7 with 7 being the highest level of restriction, how would you rate on average the privacy levels of your friends' Facebook pages?

- 1
- 2
- 3
- 4
- 5
- 6
- 7

When you are on Facebook, you are most likely...

- Stalking photos/people
- Joining groups
- Publicizing an event
- Writing posts/statuses
- Other

Do you approve photos of yourself before they can be tagged?

- Never
- Sometimes
- Frequently
- Always

Which of the following groups encompasses the majority of your friends on Facebook?

- Schoolmates
- Family/Close Friends
- Work associates
- Anyone who friends me

Do you tend to look more at a certain gender on Facebook?

- Females
- Males
- Evenly

Which of the following best explains why you use Facebook?

- To communicate
- For work/interests
- To meet people
- To keep up with people's lives
- To update others on your life
- To look at photos
- Other

Do you make judgments (positive or negative) about others based on their Facebook pages?

- Never
- Sometimes
- Frequently
- Always

Do you think about people judging you based on your Facebook?

- Never
- Sometimes
- Frequently
- Always

Do you compare yourself to others on Facebook?

- Never
- Sometimes
- Frequently
- Always

What are you most likely to compare?

- N/A
- Accomplishment via College/Job
- Attractiveness
- Weight
- Relationship Status
- Other

Usually does Facebook improve or worsen your mood?

- Depends on situation
- Improves
- Worsens
- Has no effect

Post-Exposure Measure

Instructions: The following questions are related to the Facebook pages you just viewed. Please read each question carefully and answer all questions by choosing the option that best applies to you.

Over the past 45 minutes, did you compare yourself at all physically to the individuals on these pages?

-
- Not at all
 - Somewhat
 - Frequently
 - Always

If yes, what was the nature of the majority of your comparisons?

- N/A
- Very Negative
- Negative
- Neutral
- Positive
- Very Positive

When looking at pages, were you more likely to focus on pictures or the language on the examples?

- Pictures
- Language
- Neither
- Depended on example

In relation to how you felt about your body before viewing these pages, do you feel...

- More Negative
- Unchanged
- More Positive

Are you likely to change your diet after viewing these pages?

- No
- Maybe
- Yes

If "maybe" or "yes", please check all that apply to the changes you would make.

- N/A
- Choose more healthy options
- Go on a specific diet (ex. Weight Watchers, Atkins)
- Restrict intake
- Become a vegetarian or vegan
- Eat more
- Stop eating
- Count calories
- Read food labels

Are you likely to change your exercise regime after viewing these pages?

- No
- Maybe
- Yes

If "maybe" or "yes", please check all that apply to the changes you would make.

- N/A
- Increase the length of time you workout
- Start lifting more weights
- Increase cardio
- Workout more often
- Get a physical trainer
- Join a gym
- Try a new workout
- Workout less
- Make workouts based on fun not weight loss

The following questions apply more generally to your life and Facebook experience.

Are you currently trying to lose or gain weight?

-
- No
 - Maybe
 - Yes

If "maybe" or "yes"- which?

- Gain
- Lose
- N/A

If "maybe" or "yes"- how much weight?

- N/A
- 5-10 pounds
- 10-20 pounds
- 20 pounds or more

Would you consider some form of purging to lose weight?

- No
- Maybe
- Yes

Are you dissatisfied with your weight in your Facebook pictures?

- Very Dissatisfied
- Somewhat Dissatisfied
- Neutral
- Somewhat Satisfied
- Very Satisfied

Do you believe Facebook can impact a female's body image and self-esteem?

- Not at all
- Somewhat
- Frequently
- Always

Are you friends with someone on Facebook who you know or suspect to have an eating disorder?

- No
- Yes

Have you seen information about eating disorder awareness on Facebook?

- No
- Yes

Have you ever seen "Pro Mia" or "Pro Ana" information on Facebook?

- Yes
- No
- Unsure
- Don't know what this is

Have you or your friends ever talked about your individual weights or shapes on Facebook through wall posts or picture comments?

- No
- Yes

Have you or your friends ever talked about dieting on Facebook through wall posts or picture comments?

- No
- Yes

Do you ever feel inadequate in appearance to your friends on Facebook when looking at their pictures?

- Not at all
- Somewhat
- Frequently
- Always

Mock Facebook Page Examples

Example 1 portrays images from athletic/muscular condition paired with competitive language.

The image is a screenshot of a mock Facebook profile for a user named Maxine Lakewood. The profile picture shows a woman with a very muscular physique, wearing a red sports bra and orange shorts, holding a dumbbell. The page layout includes a top navigation bar with the Facebook logo and a search bar. The profile header shows the name 'Maxine Lakewood', her education at the University of Auburn, and her location in Breckinridge, CO. Below the header is a post creation area with a 'Write something...' text box. The main content area displays two comments from other users. The first comment is from Enrique Laso, dated September 10 at 8:23am, praising her fitness and wishing her luck at pro trials. The second comment is from Alberto Jose Manuel, dated September 10 at 8:58am, complimenting her biceps. Below the comments is a 'RECENT ACTIVITY' section showing that Maxine L. is now friends with Jessica Anne Smart and 3 other people. A third comment from Kelsey Peters, dated September 7 at 11:04pm, says 'Competition aint got nothin on those abs girl!' and is liked by Josephina Callon. Another 'RECENT ACTIVITY' section shows Maxine L. is now friends with Nick Steelers and 4 other people. At the bottom of the main content area, a message states 'There are no more posts to show.' The left sidebar contains navigation links for Wall, Info, Photos, and Friends, along with a list of friends including Jack Dawes and Nick Steelers. The right sidebar features a 'Sponsor' section with a 'Win \$10' offer, a 'Come D' sambuca' advertisement, and a 'Little F...' advertisement.

facebook

Search

Maxine Lakewood Friends

Studied at [University of Auburn](#) Lives in [Breckinridge, CO](#)

Write Post Add Photo / Video

Write something...

Enrique Laso
damnnnnn girl!! you look fit! good luck at the pro trials this weekend
Like · Comment · September 10 at 8:23am via mobile

Alberto Jose Manuel I second that! your biceps look huge!
September 10 at 8:58am · Like

Write a comment...

RECENT ACTIVITY

Maxine L. is now friends with [jessica Anne Smart](#) and 3 other people.

Kelsey Peters
Competition aint got nothin on those abs girl!
Like · Comment · September 7 at 11:04pm

Josephina Callon likes this.

Write a comment...

RECENT ACTIVITY

Maxine L. is now friends with [Nick Steelers](#) and 4 other people.

There are no more posts to show.

Wall
Info
Photos
Friends

Friends (572)

Jack Dawes
Carleton CA

Nick Steelers

Sponsor
Win \$10

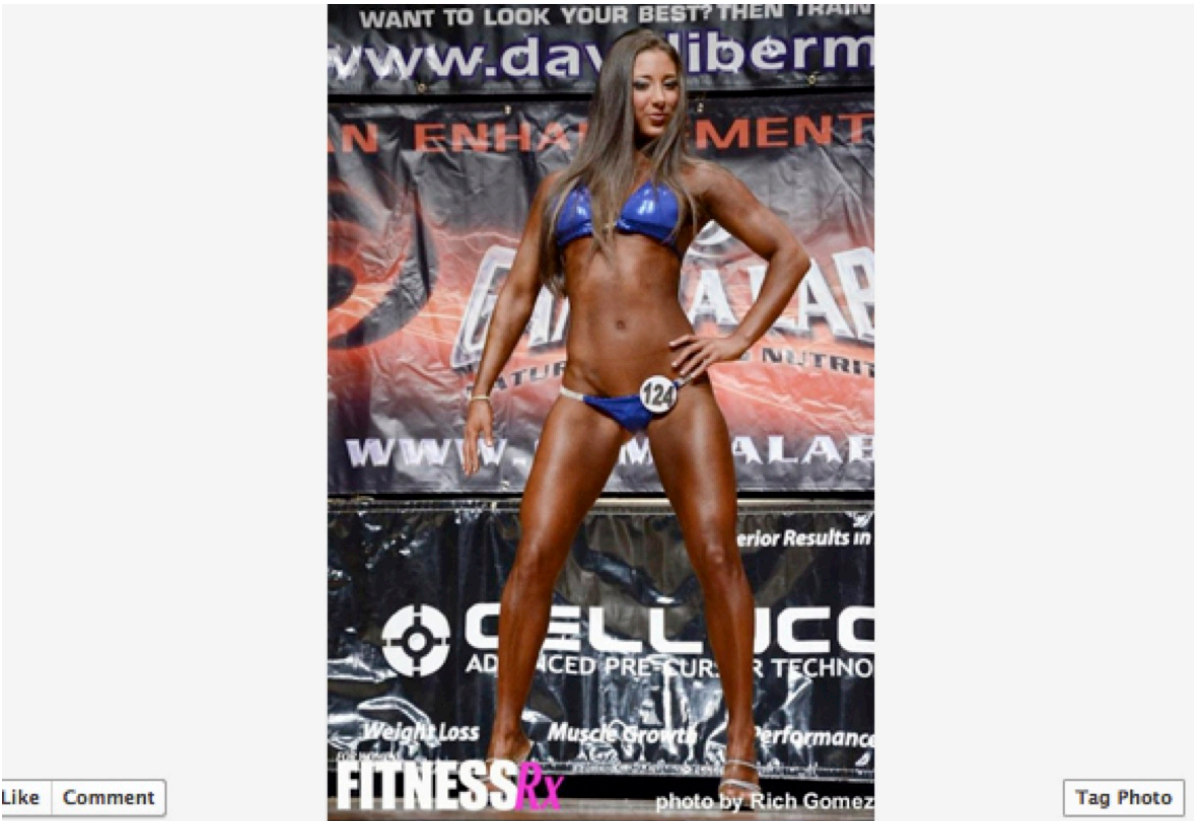
49 people

Come D' sambuca

Little F...

Like

VSP seemuch



Like Comment

Tag Photo


Maxine Lakewood at Fitness Rx Figure Competition

Album: Photos of Benjamin's Photos in Stephanie
Shared with: Custom

Like - Comment - Share - October 15

-  WOW Maxie your body looks great! Congratulations on third place!
October 17 at 11:20pm - Like - 4 people
-  Write a comment...

Tag This Photo
Download
Report This Photo

JujuBelle Independent...
 Like Jewelry? Want to earn 45% on each ...

Example 2 portrays images from the underweight condition with negative language.

facebook Search

Ashley Timmons

Studied at University of Dayton Lives in Dayton, ohio

Write Post Add Photo / Video

Write something...

Ashley Timmons
Blahhhhh cant find a profile pic where i dont look fat
Like · Comment · September 10 at 8:23am via mobile

Bernice Timmos girl im having the same problem ughhh
September 10 at 8:58am · Like

Write a comment...

RECENT ACTIVITY

Ashley T is now friends with hubert Matthewson and 3 other people.

Chris Thompson
muffin top management 101 tom morning be there chical
Like · Comment · September 7 at 11:04pm

Ashley Timmons likes this.

Write a comment...

RECENT ACTIVITY

Ashley T is now friends with Elizabeth Jenkinson and 4 other people.

There are no more posts to show.

Wall
Info
Photos
Friends

Friends (572)

Bernice Timmons
Carleton CA

Chris Thompson

Sponsor
Win \$10
49 people
Come D: sambuca
Little Flc
VSP seemuch



Like Comment

Tag Photo

 **Ashley Timmons**


Album: Photos of Person in Photo

Like · Comment · Share · October 15

Shared with:  Custom



Claire Jacobson why cant i have thighs like yours?!?
thunder thighssssss

October 17 at 11:20pm · Like ·  4 people



Write a comment...

Tag This Photo

Download

Report This Photo

JujuBelle Independent...



Like Jewelry? Want to
earn 45% on each ..

REFERENCES

- Baumeister, R. F. and Vohs, K. D. (2003). Self-regulation and the executive function of the self. In M. R. Leary & J.P. Tangney (Eds.), *Handbook of self and identity* (pp. 197–217). New York: Guilford Press.
- Beglin, S. and Fairburn, C. G. (2008). Eating Disorder Examination Questionnaire 6.0. Appendix in Fairburn, C.G. *Cognitive Behavior Therapy and Eating Disorders*. New York: Guilford Press.
- Borzekowski, D. L. G., Schenk, S., Wilson, J. L., and Peebles, R. (2010). e-ana and e-mia: A content analysis of pro-eating disorder web sites. *American Journal of Public Health, 100*(8), 1526-34.
- Carter, J. C., Stewart, D. A., and Fairburn, C. G. (2001). Eating disorder examination questionnaire: Norms for young adolescent girls. *Behaviour Research and Therapy, 39*(5), 625-632.
- Christakis, N. A., and Fowler, J. H. (2007). The spread of obesity in a large social network over 32 years. *The New England Journal of Medicine, 357* (4), 370-9.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Cooper, M. J. and Fairburn, C. G. (1992). Selective processing of eating, weight and shape related words in patients with eating disorders and dieters. *Br J Clin Psychol; 31* : 363–365.
- Faunce, G. J. (2002). Eating disorders and attentional bias: *A Review. Eat Disord; 10*:125–139.
- Fairburn, C.G. and Beglin, S.J. (1994). Assessment of eating disorders: interview or self-report questionnaire? *International Journal of Eating Disorders 16*, 363–370.
- Fairburn, C.G. and Cooper, Z. (1993). The eating disorder examination. In: Fairburn, C.G. and Wilson, G.T. (Eds.), *Binge Eating: Nature, Assessment and Treatment*, 12th ed. New York: Guilford Press.
- Forest, A.L., and Wood, J.V. (2012). When social networking is not working: individuals with low self-esteem recognize but do not reap the benefits of self-disclosure on Facebook. *Psychological Science 23*, 295–302.
- Grabe, S., Ward, L. M., and Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin, 134*(3), 460-476.

- Garner, D.M., Olmsted, M.P., and Polivy, J., 1983. Development and validation of a multidimensional eating disorder inventory. *International Journal of Eating Disorders*, 2, 15–34.
- Gilbert, N., & Meyer, C. (2004). Similarity in young women's eating attitudes: Self-selected versus artificially constructed groups. *International Journal of Eating Disorders*, 36 (2), 213-219.
- Grisset, N.I. and Norvell, N.K. (1992). Perceived social support, social skills, and quality of relationships in bulimic women. *Journal of Consulting and Clinical Psychology* 60, 293–299.
- Groesz, L.M., Levine, M.P., and Murnen, S.K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, 31, 1–16.
- Harris, P.A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., and Conde, J. G. (2009). Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support, *J Biomed Inform.* Apr;42(2):377-81
- Hartmann, A., Zeeck, A. and Barrett, M. S. (2010). Interpersonal problems in eating disorders. *International Journal of Eating Disorders*, 43: 619–627.
- Hinrichsen, H., Wright, F., Waller, G., and Meyer, C. (2003). Social anxiety and coping strategies in the eating disorders, *Eating Behaviors*, 4 (2): 117-126.
- Hopwood, C.J., Clarke, A.N., and Perez, M. (2007). Patho plasticity of bulimic features and interpersonal problems. *International Journal of Eating Disorders*. 40, 652–658.
- Hudson, J. I. , Hiripi, E., Pope, H. G. and Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*. 61: 348-58.
- Joiner Jr., T.E. (1997). Self-verification and bulimic symptoms: do bulimic women play a role in perpetuating their own dissatisfaction and symptoms? *International Journal of Eating Disorders*. 26, 145–151.
- Joiner, T., Alfano, M., and Metalsky, G. (1992). When depression breeds contempt: reassurance seeking, self-esteem, and rejection of depressed college students by their roommates. *Journal of Abnormal Psychology*, 101, 165–173.

- Krones, P.G., Stice, E., Batres, C., and Orjada, K. (2005). In vivo social comparison to a thin-ideal peer promotes body dissatisfaction: a randomized experiment. *International Journal of Eating Disorders*, 38, 134–142.
- Lampard, A.M., Byrne, S.M., and McLean, N. (2011). Does self-esteem mediate the relationship between interpersonal problems and symptoms of disordered eating? *European Eating Disorders Review*, 19, 454–458.
- Li, N.P., Smith, A.R., Giskevicius, V., Cason, M.J., and Bryan, A. (2010). Intrasexual competition and eating restriction in heterosexual and homosexual individuals. *Evolution and Human Behaviour*, 31,365–372.
- Lee, M. and Shafran, R. (2004). Information processing biases in eating disorders. *Clinical Psychology Review*, 24:215–238.
- Luce, K. H., and Crowther, J. H. (1999). The reliability of the Eating Disorder Examination—Self-report questionnaire version (EDE-Q). *International Journal of Eating Disorders*, 25(3), 349-351.
- Luce, K. H., Crowther, J. H., and Pole, M. (2008). Eating disorder examination questionnaire (EDE-Q): Norms for undergraduate women. *International Journal of Eating Disorders*, 41(3), 273-276.
- Mond, J.M., Hay, P.J., Rodgers, B. and Owen, C. (2006). Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behaviour Research and Therapy*, 44(1), 53-62.
- National Association of Anorexia Nervosa and Associated Disorders. (2012). Eating Disorder Statistics. Available from: <http://www.anad.org/get-information/about-eating-disorders/eating-disorders-statistics/S>.
- Paxton, S. J., Schutz, H. K., Wertheim, E. H., and Muir, S. L. (1999). Friendship clique and peer influences on body image concerns, dietary restraint, extreme weight-loss behaviors, and binge eating in adolescent girls. *The Journal of Abnormal Psychology*, 108(2), 255-266.
- Peterson, C.B. and Mitchell, J.E. (2005). Self report measures. In J. E. Mitchell & C. B. Peterson (eds.), *Assessment of eating disorders* (pp. 120-128). New York: Guilford Press
- Rieger, E., Van Buren, D. J., Bishop, M., Tanofsky-Kraff, M., Welch, R., and Wilfley, D. E. (2010). An eating disorder-specific model of interpersonal psychotherapy (IPT-ED): Causal pathways and treatment implications. *Clinical Psychology Review*, 30(4), 400-410.

- Sharpe, H., Musiat, P., Knapton, O., and Schmidt, U. (2011). Pro-eating disorder websites: Facts, fictions and fixes. *Journal of Public Mental Health, 10*(1), 34-44.
- Smith, E., and Rieger, E. (2010). An investigation of the effect of body dissatisfaction on selective attention toward negative shape and weight-related information. *International Journal of Eating Disorders, 43*(4), 358-364.
- Smith, A. (2012). Facebook reaches one billion users. CNNMoney. Available from http://money.cnn.com/2012/10/04/technology/facebook-billion-users/index.html?hpt=hp_t3S.
- Smith, A. R., Hames, J. L., and Joiner, T. E. (2013). Status update: Maladaptive Facebook usage predicts increases in body dissatisfaction and bulimic symptoms. *Journal of Affective Disorders.*
- Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences (5th ed.)*. New York, NY, US: Routledge/Taylor & Francis Group, New York, NY.
- Tanofsky-Kraff, M., Wilfley, D.E., and Spurrell, E. (2000). Impact of interpersonal and ego related stress on restrained eaters. *International Journal of Eating Disorders 27*, 411–418.
- Tesser, A. (2003). Self-evaluation. In M. R. Leary, & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 275–290). New York: Guilford Press.
- Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women’s mood and body dissatisfaction. *Journal of Social and Clinical Psychology, 23*, 23–44.
- Thompson, J. K., Coovert, M., Richards, K. J., Johnson, S., and Cattarin, J. (1995). Development of body image, eating disturbance, and general psychological functioning in female adolescents: Covariance structural modeling and longitudinal investigation. *International Journal of Eating Disorders, 18*, 221-236.
- Thompson, J. K., Coovert, M. D., and Stormer, S. M. (1999). Body image, social comparison, and eating disturbance: A covariance structure modeling investigation. *International Journal of Eating Disorders, 26*(1), 43-51.
- Urbaniak, G. C., and Plous, S. (2011). Research Randomizer (Version 3.0) [Computer software]. Retrieved on March 20, 2012, from <http://www.randomizer.org/>
- Vitousek, K.B., Hollon, S.D. (1990). The investigation of schematic content and processing in eating disorders. *Cognitive Ther Res.14*: 191–214.

Wilfley, D. E., Stein, R., and Welch, R. (2003). Interpersonal psychotherapy. *In J. Treasure, U. Schmidt & E. van Furth (Eds.), Handbook of eating disorders* (pp. 253–270)., 2nd ed. Chichester: John Wiley.

Wood, J. V., and Wilson, A. E. (2003). How important is social comparison? In M. R. Leary & J.P. Tangney (Eds.), *Handbook of self and identity* (pp. 344–366). New York: Guilford Press