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Examining the Impact of Social Media Use on Body Dissatisfaction and Eating Disorder Symptomatology Among Adolescents

Ilyssa P. Salomon
University of Kentucky, ilyssa.salomon@gmail.com
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Ilyssa P. Salomon, Student

Dr. Christia Spears Brown, Major Professor

Dr. Mark Fillmore, Director of Graduate Studies

EXAMINING THE IMPACT OF SOCIAL MEDIA USE ON BODY DISSATISFACTION AND EATING DISORDER SYMPTOMATOLOGY AMONG ADOLESCENTS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Arts and Sciences
at the University of Kentucky

By
Ilyssa Paige Salomon
Lexington, Kentucky
Director: Dr. Christia Spears Brown, Professor of Psychology
Lexington, Kentucky
2020

ABSTRACT OF DISSERTATION

EXAMINING THE IMPACT OF SOCIAL MEDIA USE ON BODY DISSATISFACTION AND EATING DISORDER SYMPTOMATOLOGY AMONG ADOLESCENTS

Media exposure is often cited as a causal factor in the development of body dissatisfaction, or negative thoughts and feelings toward the body (Grogan, 2017; Thompson, Heinberg, Atlabe, & Tantleff-Dunn, 1999). While eating disorders most commonly emerge during late adolescence (18-21 years), risk factors that predict the later onset of eating disorders emerge much earlier and escalate during adolescence (13-16 years; Hudson, Hiripi, Pope, & Kessler, 2007; Rhode, Stice, & Marti, 2016). Overall, links between exposure to traditional forms of mainstream media (e.g. television and magazines), body dissatisfaction, and eating disorder symptomatology are well-established in the literature, with robust findings based on correlational, longitudinal, and experimental research (e.g. Grabe, Ward, & Hyde, 2008; Hargreaves & Tiggemann, 2003; Harrison & Heffner, 2006). However, social media (e.g. Facebook, Instagram, TikTok) now dominate the media diets of adolescents, and differ from traditional media in ways that may exacerbate the association between media exposure and body-related outcomes. Previous research suggests that social comparison and self-objectification may represent two psychological mechanisms by which media exposure can impact body dissatisfaction (Festinger, 1954; Fredrickson & Roberts, 1997). The first study was a between-subjects experimental protocol completed by ninth grade students (N = 147; 75 boys, 69 girls, 3 did not report gender; M_{age} = 14.54, SD_{age} = .57) and a comparison sample of college students (N = 581; 144 men, 448 women, 9 did not report gender; M_{age} = 19.39, SD_{age} = 1.72) designed to examine the impact of social comparison and self-objectification on body dissatisfaction. Participants completed either a control task or an experimental manipulation that prompted either self-objectification or both self-objectification and social comparison. Results of this study indicated partial support for hypotheses, specifically that adolescents are particularly sensitive to social comparison processes compared to college students. The second study explored the impact of social media use on body dissatisfaction and eating disorder symptomatology among the same sample of adolescents. This study also explored the role of individual difference characteristics (i.e. self-perceived gender typicality and self-monitoring) in the relationship between social media use and body-related outcomes (Egan & Perry, 2001; Leaper & Brown, 2008; Snyder, 1986; Graziano, Leone, Musser, & Lautenschlager, 1987). Results indicated that higher emotional investment in technology predicted higher

eating disorder symptomatology among girls, especially for girls who felt less typical for their gender than their peers. Results also indicated that higher self-monitoring, or greater sensitivity to the opinions of peers, was associated with higher body dissatisfaction and eating disorder symptomatology among both girls and boys. Taken together, the results of these studies suggest that emotional investment in experiences online may contribute to the development of body dissatisfaction and eating disorder symptomatology among adolescents, who are already at a greater risk of experiencing negative body image.

KEYWORDS: Social media use, body image, body dissatisfaction, eating disorder symptomatology, adolescence

Ilyssa Paige Salomon

(Name of Student)

June 01, 2020

Date

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By

Ilyssa Paige Salomon

Christia Spears Brown, Ph.D.
Director of Dissertation

Mark T. Fillmore, Ph.D.
Director of Graduate Studies

June 01, 2020

DEDICATION

To those I've loved and lost.
Barbara Irwin
Catherine Salomon
Elana Salomon
Ernie Elias
Martin Irwin
Sam Salomon

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Thank you, Mom and Dad, for always fueling my dreams and sacrificing anything for my education.

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Background and Significance

Media exposure is often cited as a causal factor in the development of body dissatisfaction, or negative thoughts and feelings toward the body (Grogan, 2017; Thompson, Heinberg, Atlabe, & Tantleff-Dunn, 1999). While eating disorders most commonly emerge during late adolescence (18-21 years), risk factors that predict the later onset of eating disorders emerge much earlier and escalate during adolescence (13-16 years; Hudson, Hiripi, Pope, & Kessler, 2007; Rhode, Stice, & Marti, 2016). Previous research has demonstrated that body dissatisfaction during adolescence is a powerful and consistent predictor of later eating disorder symptomatology (Grogan, 2017; Rhode et al., 2016). Body dissatisfaction is heavily influenced by exposure and sensitivity to media images that portray idealized and unrealistic cultural body standards. Therefore, understanding body dissatisfaction and eating disorder symptomatology across adolescence, especially in the context of heavy social media use, is critical to future interventions that wish to recognize and address risk factors among adolescents that contribute to the development of body dissatisfaction and disordered eating.

Body Dissatisfaction and Eating Disorder Symptomatology in Adolescence

As a developmental period, adolescence is characterized by intersecting social, psychological, and physical changes. Socially, adolescents deviate from the primarily same-sex friend groups that exist throughout childhood and become more interested in interacting with opposite-sex peers and engaging in romantic activities (Brown, 2004; Brown & Larson, 2009; Connolly & McIsaac, 2009). Peer groups also grow in complexity, with status hierarchies emerging both within and between social groups (Brown & Larson, 2009). Psychologically, as physical appearance becomes more central

to self-worth during adolescence, physical attractiveness becomes an important indicator of status and popularity (Harter, 2012; Brown & Larson, 2009). These increases in the social and psychological emphasis placed on physical appearance during adolescence make it a particularly vulnerable period for experiencing body dissatisfaction across development.

The physical changes of puberty also contribute to adolescents' heightened risk for developing body dissatisfaction. Although girls generally begin puberty before boys do (beginning at approximately 8 to 13 years old for girls, compared to 9 to 14 years old for boys), both boys and girls are at risk for experiencing body dissatisfaction during adolescence. For girls, as they progress through puberty, increases in body fat and body mass index (BMI) move them farther away from thin ideals perpetuated by the mass media (Bearman, Martinez, Stice, & Presnell, 2006). When girls' feel that their bodies fail to meet cultural expectations, especially in a developmental context that emphasizes physical appearance, they can develop body dissatisfaction. In contrast, for boys, the physical growth and changes of puberty bring boys closer to desired body ideals (e.g. muscularity, height). Thus, adolescent boys are at risk of experiencing body dissatisfaction in the period before these pubertal changes have occurred (Bearman et al., 2006). Despite a robust literature documenting higher rates of body dissatisfaction and appearance concerns among girls than boys, more recent research suggests that body image concerns among boys may be increasing, likely due to greater emphasis placed on men's appearance in the media (Dakanalis et al., 2015; Michaels, Parent, & Moradi, 2013; Perloff, 2014; Rohlinger, 2002).

Taken together, the social, psychological, and physical changes that occur across adolescence increase the salience of physical appearance and make adolescents

vulnerable to experiencing body dissatisfaction. Despite this vulnerability, previous research suggests that the majority of adolescents will eventually outgrow these experiences of negative body image around age 18-21 (Gattario & Frisén, 2019). Although increases in body dissatisfaction during adolescence are considered somewhat normative, body dissatisfaction is associated with a number of negative consequences including depression, low self-esteem, anxiety, cognitive distraction, and even sexual difficulties (Carvalheira, Godinho, & Costa, 2017; Holland & Tiggemann, 2016; Szymanski & Cash, 1995; Tiggemann, 2012). With pressure from the media and peers to maximize physical attractiveness and meet cultural ideals, body dissatisfaction can also motivate adolescents to engage in behaviors intended to alter appearance, such as dieting, exercise, tanning, and plastic surgery. Importantly, behaviors like extreme dieting and exercise can escalate into eating disorder symptomatology, which causes a significant amount of physical and emotional impairment (Rhode, Stice, & Marti, 2016). An epidemiological study following adolescent girls found that 13% experienced threshold or subthreshold symptoms of an eating disorder by age 20, including symptoms of anorexia nervosa, binge eating disorder, or bulimia nervosa (Stice, Marti, & Rhode, 2013).

Symptoms of anorexia nervosa include an intense fear of gaining weight and restricting food to reach or maintain a significantly low body weight (American Psychiatric Association, 2013). Symptoms of binge eating disorder include eating a large amount of food, more than what is considered the norm, in a short amount of time (e.g. 2 hours), which can result in feeling uncomfortably full (American Psychiatric Association, 2013). Bulimia nervosa is characterized by binging and purging behaviors, which include both overeating and engaging in behaviors to avoid gaining weight, such as vomiting,

taking laxatives, or over-exercise. The binges that occur within both binge eating disorder and bulimia nervosa are also characterized by a sense of losing control while eating, which often leads to significant distress after a binging episode (American Psychiatric Association, 2013). Previous research suggests that risk factors for developing eating disorder symptomatology escalate during early adolescence, identifying age 14 as, "a key developmental timepoint to intervene" (Rhode et al., 2016, p. 10). Overall, as adolescents' heightened risk for developing body dissatisfaction and eating disorder symptomatology occurs within the context of heavy media use, it is important to consider the impact of social media use on body-related outcomes across this developmental period (Perloff, 2014; Thompson et al., 1999).

The Impact of Media on Body Image

Broadly, social cognitive theory of mass communication (SCTMC) provides a conceptual framework for understanding how exposure to media can impact individual development (Bandura, 2009). Although sitting in front of the television or flipping through a magazine can seem quite passive, SCTMC suggests that human interaction with media is an active process and a source of observational learning. Media provides a symbolic model of how the world works, transmitting culturally-relevant information about the efficacy of particular values, thoughts, and behaviors. Consistent with SCTMC, sociocultural theories of body image suggest that the media communicates information about what body shapes and sizes are ideal for both men and women (Thompson et al., 1999; Tiggemann, 2012). In westernized cultures like the United States, the United Kingdom, and Australia, these body standards generally emphasize the importance of thin and toned bodies for both men and women (Grogan, 2017). In addition, there are also gender-specific expectations, an emphasis on muscularity for men (e.g. "six-pack abs",

large biceps) and on particular body proportions for women (e.g. large breasts, small waist; Grogan, 2017).

Overall, links between exposure to traditional forms of mainstream media (e.g. television and magazines), body dissatisfaction, and eating disorder symptomatology are well-established in the literature, with robust findings based on correlational, longitudinal, and experimental research (e.g. Grabe, Ward, & Hyde, 2008; Hargreaves & Tiggemann, 2003; Harrison & Heffner, 2006). However, social media (e.g. Facebook, Instagram, TikTok) now dominate the media diets of adolescents, and differ from traditional media in ways that may exacerbate the association between media exposure and body-related outcomes. Namely, due to the popularity and availability of smartphone technology, adolescents can engage with social media almost constantly throughout the day, increasing their exposure to content that reinforces cultural body ideals (Anderson & Jiang, 2018). On social media, users can also exercise more control over what type of content they see by "following" certain people, often a mixture of public figures like celebrities and people they know in real life like friends and classmates. Correlational research has demonstrated that spending more time on social media, higher emotional investment in technology, and engaging in more activities that involve photos on social media are associated with higher levels of body dissatisfaction (Holland & Tiggemann, 2016). However, due to the swift and steady increase in social media use in the past decade, there is a lack of evidence investigating the relationship between social media use, body dissatisfaction, and eating disorder symptomatology among adolescent populations.

Proposed Psychological Mechanisms

Within a sociocultural framework, previous research has also identified specific psychological mechanisms that may explain how media exposure comes to affect body dissatisfaction and other body-related outcomes (Perloff, 2014; Holland & Tiggemann, 2016). First, built on a foundation of feminist scholarship, objectification theory characterizes the impact of living in a Westernized society on women's body image (Fredrickson & Roberts, 1997). Objectification theory posits that when women are consistently objectified or valued predominately for their sex appeal and physical appearance, it can result in self-objectification (Fredrickson & Roberts, 1997; Tiggemann & Williams, 2012). Self-objectification occurs when women internalize this outside, evaluative perspective toward themselves, which can lead to body dissatisfaction and appearance anxiety (APA, 2007). In addition to experiencing objectification first-hand, previous research has demonstrated that exposure to objectifying content in the media (e.g. television, advertisements, magazines, music videos) also leads to self-objectification and negative consequences for body image (APA, 2007).

As many popular social media outlets like Instagram are based on viewing and sharing photos, it is likely that adolescents who use social media will encounter objectifying content that reinforces the importance of physical appearance. Further, unlike more traditional forms of media (e.g. television, music videos), social media allows users to create their own content and receive reinforcement from others in the form of comments and likes. Previous research suggests that people post on their social media accounts with their audience in mind, which may represent a form of self-objectification (Manago, Graham, Greenfield, & Salimkhan, 2008). In line with this assertion, engaging in photo behaviors on social media, including looking at photos and

taking and posting selfies, is associated with increases in body dissatisfaction, self-objectification, and other negative appearance-related outcomes (Hummel & Smith, 2015; Meier & Gray, 2014; Mills, Musto, Williams, & Tiggemann, 2018; Salmon & Brown, in revision). Therefore, it is possible that self-objectification is an underlying reason for the association between social media use and body dissatisfaction.

Second, according to social comparison theory (Festinger, 1954), in the absence of an objective way to measure physical appearance, people will compare themselves to similar others in order to gage their relative standing. When people view the target of a comparison as more physically attractive than themselves, referred to as an upward appearance comparison, the discrepancy can result in body dissatisfaction (Want, 2009). When adolescents use social media, especially image- and video-centered platforms like Instagram and TikTok, it is possible that they are engaging in appearance comparisons with the people they see. Further, despite social comparison theory's assertion that adolescents' dissimilarity to media figures should protect them from engaging in upward appearance comparisons with celebrities and models, existing research suggests that adolescents compare their physical appearance to media figures just as often as peers (Brown & Tiggemann, 2016; Jones, 2001).

Previous research suggests that people do engage in social comparison processes on social media. For example, one study demonstrated that individuals who engage in more appearance comparisons were less satisfied with their appearance after using Facebook for 10 minutes compared to a control website (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015). Similarly, another study found that viewing a Facebook profile that depicted healthy habits (e.g. hiking, running, eating healthy) resulted in lower self-esteem among participants than viewing a profile that depicted unhealthy habits (Vogel, Rose,

Roberts, & Eckles, 2014). Taken together, the importance of physical appearance during adolescence, coupled with people's tendencies to present the best versions of themselves on social media, may make engaging in upward appearance comparisons on social media particularly damaging among adolescents compared to other age groups (Toma & Hancock, 2010). As adolescents encounter both idealized versions of their peers and celebrities on social media, it is likely that social comparison processes contribute to the development of body dissatisfaction among adolescents.

Individual Differences in the Impact of Social Media on Body Image

Social cognitive theory of mass communication and sociocultural theories of body image also suggest that individual characteristics (e.g. cognitive, affective, and biological traits) will impact how media models are interpreted and the ways they are integrated into behavior. Therefore, certain individual characteristics among adolescents may place them at a greater risk of developing body dissatisfaction and eating disorder symptomatology than their peers. First, individuals who are high in self-monitoring are more sensitive to social cues and the opinions of their peers, making them more likely to moderate their own behavior to meet the expectations of others (Snyder, 1986; Graziano, Leone, Musser, & Lautenschlager, 1987). The overall importance of peers increases across adolescence, and peer pressure from friends and social groups to meet cultural body ideals can play a role in the development of body dissatisfaction and eating disorders (McCabe & Ricciardelli, 2005). Previous work has found that the association between objectifying social media use and body dissatisfaction is stronger among early adolescents higher in self-monitoring (Salomon & Brown, 2019). Individuals higher in self-monitoring may be more sensitive to their experiences on social media, and thus at a greater risk of experiencing body dissatisfaction and eating disorder symptomatology.

Second, self-perceived gender typicality captures how similar individuals feel to other members of their gender; in other words, whether they feel like a "typical boy" or "typical girl" (Egan & Perry, 2001; Leaper & Brown, 2008). During adolescence, the importance placed on cultural gender norms intensifies, often leading to policing of appropriate vs. inappropriate gendered behaviors among peers (Hill & Lynch, 1983). Previous research has demonstrated that being perceived as gender atypical can have a negative impact on adolescents' mental health, particularly due to gender-based harassment and teasing by peers (Jewell & Brown, 2014). As cultural gender norms also include gender-specific cultural body standards, it is likely that adolescents lower in gender typicality may be more vulnerable to experiencing body dissatisfaction than their peers. Consistent with this assertion, previous research has demonstrated that lower gender typicality among adolescent boys predicted higher levels of gender-based teasing, which further predicted higher levels of body dissatisfaction (Jewell & Brown, 2014). Therefore, with heightened social media use, the discrepancy between cultural body standards and adolescents' own bodies may be particularly salient for adolescents lower in self-perceived gender typicality, placing them at a greater risk of developing body dissatisfaction and eating disorder symptomatology.

The Current Study

Study 1. Previous research suggests that the risk of developing negative body image peaks at age 14 and that most individuals overcome negative body image and reach a point of general satisfaction with their bodies from age 18-21 (Gattario & Frisén, 2019; Rhode et al., 2016). Therefore, the first study was a between-subjects experimental protocol completed by ninth grade students and a comparison sample of college students. To examine which psychological mechanism is most responsible for linking social media

use and body dissatisfaction, participants completed either a control task or an experimental manipulation that prompted either self-objectification or both self-objectification and social comparison.

It was hypothesized that, controlling for gender, adolescents and college students who engaged in self-objectification on social media would show higher body dissatisfaction than the control group (H1a). It was also hypothesized that adolescents and college students who engaged in self-objectification *and* social comparison processes would show the highest body dissatisfaction overall (H1b). Finally, while the mechanisms may function similarly within both the adolescent and college-student populations, it was hypothesized that the magnitude of the effect of the manipulation would be stronger among adolescents than college students (H1c).

Study 2. The second study explored the impact of social media use on body dissatisfaction and eating disorder symptomatology among the same sample of adolescents. This study also explored the role of individual difference characteristics in the relationship between social media use and body-related outcomes. To account for potential gender differences, these relationships were examined separately for boys and girls.

It was hypothesized that higher photo behavior on social media and higher emotional investment in technology would predict higher body dissatisfaction (H2a) and eating disorder symptomatology (H2b) among adolescents. It was further hypothesized that these associations would be moderated by self-monitoring and self-perceived gender typicality such that these associations would be stronger among individuals who were higher in self-monitoring (H2c) and lower in self-perceived gender typicality (H2d) than their peers.

Chapter Two: Method

Participants

Participants for the adolescent sample consisted of ninth grade students (N = 147; 75 cisgender boys, 69 cisgender girls, three who did not report their gender) from a public high school located in a rural county in Kentucky (population = 21,521 people). Participants had a mean age of 14.54 (SD = .57; range 13-16). Participants identified as 68% White, 14.3% mixed-race/more than one race, 4.1% Black/African American, 4.8% Hispanic/Latinx, .7% Asian, 1.4% American Indian/Alaskan Native, .7% Native Hawaiian/Pacific Islander, and eight participants did not disclose their ethnicity/race. This breakdown of ethnicity/race was consistent with the school's population (829 students), the majority of whom identify as White, with 15% of students identifying as a racial minority (Black or Hispanic/Latinx). The number of students who qualified for free/reduced lunch at the participating school was 46%, which is below the Kentucky state average of 58%. Due to sample-size constraints, the proposed models were adjusted for complexity and ultimately achieved a level of 80.43% power to detect a medium effect size (f^2 = .20).

Participants for the college sample consisted of college students (N = 581; 448 cisgender women, 144 cisgender men, nine who did not report their gender) from a large public university located in a city in Kentucky (city population = 321,959). This sample had a mean age of 19.39 (SD = 1.72; range 18-33). Participants identified as 71.9% White, 10.7% Black/African American, 7.3% mixed-race/more than one race, 3.4% Hispanic/Latinx, 4.2% Asian, 1.5% that did not fit into a category (e.g., Bulgarian), and six participants did not disclose their ethnicity/race. This breakdown of ethnicity/race was consistent with the greater university population (22,1888 students), with students

identifying as 75.3% White, 7.4% Black/African American, 4.9% Hispanic/Latinx, 3.9 % two or more races, 2.9% unknown ethnicity, 2.8% Asian, 2.5% undocumented immigrant, 0.2% Native American, and 0.1% Native Hawaiian/Pacific Islander.

Study 1 Procedure

All research materials were approved by the university's Institutional Review Board. For the adolescent sample, both studies took place at their school during the school day. Adolescents completed all research tasks in their "Survey of Social Sciences" course, which every ninth-grade student has once a day in one of two classrooms. Before participating, the adolescent sample received a written parental consent form to take home that allowed their parent or guardian to opt them out of participation (i.e., using passive consent procedures). The principal also sent a message out to parent(s)/guardian(s) of ninth graders using an automated messaging system utilized by the school. Parents received these messages in the form of a text message, email, and/or phone call, depending on their message settings. The message alerted parent(s)/guardian(s) that the study was taking place in their child's classroom and that they could find more information about the study and opt their child out of participation with the form each child was taking home. The message also provided a link (or alerted them to the presence of a link) to an electronic copy of the consent form that would allow them to opt their children out from participation electronically. The adolescent sample also received a written assent form before participating in the study, which assured them that even if their parent did not opt them out of the study, they still did not have to participate. Only students whose parents had not declined consent, and who themselves gave assent, participated in the study. Overall, eight parents opted their children out of participating in the study, and 15 students opted out of participating in the study.

College participants were members of the psychology research subject pool at the author's institution and completed all research tasks online using the survey platform Qualtrics. College students signed up to participate in the study through SONA and received one research credit that they could use for course credit in return for their participation. Upon accessing the study online, they were prompted with an informed consent form and gave consent electronically. If participants did not consent, they were re-directed to the end of the survey.

Both the adolescent and college student samples completed a between-subjects design experimental manipulation that consisted of three conditions: self-objectification, self-objectification plus social comparison, and a control. First, participants completed a pre-test measure assessing body dissatisfaction. Second, participants read one of three experimental prompts. The prompts asked participants to open their own Instagram accounts and answer a series of questions in a free-response format. If participants did not have an Instagram account they did not complete the experimental task. Specifically, the *self-objectification* aspect of the experimental prompts asked participants to think about their Instagram profile from the perspective of other people (the board members of a company). The prompt that included both *self-objectification and social comparison* added additional details to elicit social comparison processes: the board members are looking at several different profiles, including other kids/people at the participants' school. The *control* condition had the same prompt as the self-objectification condition adapted to have participants look at the Instagram profile of the Louisville Zoo. The full experimental prompts for each condition and other study measures are presented in the Appendix. After completing the experimental manipulation, participants completed the

post-test measure of body dissatisfaction. The entire experimental manipulation took approximately 10-15 minutes to complete.

Study 2 Procedure

After completing Study 1, the adolescent sample also completed a survey for Study 2 in the form of a paper survey. Research materials for Study 2 included questions that assessed social media use, body-related outcomes, and individual characteristics. Participants began Study 2 immediately after finishing Study 1, and it took approximately another 15-20 minutes to complete.

Measures

Demographics. Participants were asked to report their age, race/ethnicity, and gender in an open-ended format. These answers were then coded into categories by undergraduate research assistants.

Pre-test and post-test body satisfaction. Visual analog scales (0-100 mm) were utilized to assess changes in body satisfaction (Heinberg & Thomas, 1995). Participants completed two scales before *and* after the experimental manipulation: "How do you feel about your body shape *right now*?" and "How do you feel about your weight *right now*?" Participants indicated their answer by drawing a line that corresponded to their level of satisfaction; the left anchor for each question read, "extremely unsatisfied" and the right anchor read, "extremely satisfied". Visual analog scales have been used in body image research to assess subtle differences in emotion and cognition (e.g. Bury, Tiggemann, & Slater, 2016). For Study 1, change in body shape and body weight from the pre-test to post-test were calculated and examined individually. For Study 2, the values from the first set of visual analog scales completed before the experimental manipulation were summed and used to represent overall body satisfaction.

Social media use. Social media use was assessed in two ways: photo behaviors and emotional investment. For photo behaviors, participants completed a modified version of the Facebook Questionnaire that assesses appearance-related exposure across social media platforms (12 items; Meier & Gray, 2014). The measure was modified to incorporate photo behaviors common across multiple social media platforms, not just Facebook. Participants indicated, on a Likert scale (from 1= *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Always*), how often they engage in each type of behavior, such as "posting a selfie or photo of yourself" or, "commenting on friends' photos." Mean scores for each participant were calculated to represent higher engagement in photo behaviors on social media. This measure demonstrated acceptable reliability in the current sample ($\alpha = .82$). For emotional investment, participants completed the dependence on technology subscale (3 items) from the Media and Technology Usage and Attitudes Scale (Rosen, Whaling, Carrier, Cheever, & Rokkum, 2013). Participants indicated, on a Likert scale (from 1= *Strongly Disagree,* 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly Agree*), how much they agreed with statements, such as, "I get anxious when I don't have my cell phone," and, "I get anxious when I don't have the Internet available to me." Mean scores for each participant were calculated to represent higher emotional investment in technology. This measure demonstrated acceptable reliability in the current sample ($\alpha = .75$). For Study 2, these variables were examined individually as predictors of body-related outcomes.

Eating disorder symptomatology. Eating disorder symptomatology was represented by eating disorder risk and behavior. To assess levels of eating disorder risk, participants completed the College Eating Disorder Screen (Nowak, Roberson-Nay, Strong, Bucceri, & Lejuez, 2003). Although this scale was originally developed for use among college students, it has demonstrated acceptable validity and reliability in use

among adolescents (α = .85-.87; Pearson, Guller, McPherson, Lejuez, & Smith, 2014). This measure captures risk for developing eating disorder symptomatology among individuals who may exhibit disordered behaviors but do not yet meet criteria for diagnosis. The 7 items included, "I am embarrassed when I am with a group of people and I am the only one ordering food." and "I get very upset when I weigh myself and I have gained a few pounds." Participants indicated how much each item was true for them by responding on a Likert scale (1= *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Always*). Items were averaged to create a mean score for each participant with higher scores indicating higher levels of risk. This measure demonstrated acceptable reliability in the current sample (α = .91).

To assess eating disorder behavior, participants completed a modified version of the Eating Disorder Examination – Questionnaire for adolescents (Fairburn & Beglin, 1994; Carter, Stewart, & Fairburn, 2001). Specifically, participants completed 13 items that capture the frequency of eating restraint and other disordered behaviors. For example, items included, "Have you been trying to cut down on food to control your weight or shape?" and "Have you felt that you lost control and ate too much?" Participants indicated how frequently they engaged in each behavior over the last two weeks by choosing from the options: No days, 1-2, 3-6, 7, 8-10, or 12-13 days. Items were averaged to create a mean score for each participant with higher scores indicating higher levels of symptomatology. This scale has demonstrated acceptable reliability among adolescent samples (Carter et al., 2001) and in the current sample (α = .77). Participant means from the risk and symptomatology measures were summed to create an overall score representing eating disorder symptomatology.

Self-monitoring. To assess levels of self-monitoring, participants completed a modified version of the Junior Self-Monitoring Scale by Graziano, Leone, Musser, and Lautenschlager (1987). This measure captures adolescents' tendencies to self-monitor or look to social cues from others to guide behavior. The 19 items included, "I sometimes wear some kinds of clothes just because my friends are wearing that kind" and "I listen to what my friends say about new people before I decide." Participants indicated how much each item was true for them by responding on a Likert scale (1= *Not at all true*, 2 = *A little true*, 3 = *Somewhat true*, 4 = *Often true*). Items were averaged to create a mean score for each participant with higher scores indicating higher levels of self-monitoring. This measure demonstrated acceptable reliability in the current sample ($\alpha = .83$).

Self-perceived gender typicality. To assess self-rated perceptions of gender typicality, participants completed an adapted version of the typicality subscale from a multidimensional measure of gender identity (original version Egan & Perrty, 2001; adapted by Leaper & Brown, 2008). This measure captures how similar individuals perceive themselves to other girls/women and men/boys. For each gender, the six items included, "I feel like I am just like all other boys/girls my age" and "I feel I fit in with other boys/girls." Participants completed both versions of the measure and indicated how much each item was true for them by responding on a Likert scale (1= *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly Agree*). To examine same-gender typicality for the current study, items were averaged to create a mean score for each participant that was consistent with their reported gender, with higher scores indicating higher levels of typicality. This scale has demonstrated acceptable reliability among adolescent boys ($\alpha = .88$) and girls ($\alpha = .87$; Jewell & Brown, 2014), and had acceptable reliability in the current sample (boy version $\alpha = .80$; girl version $\alpha = .94$).

Chapter Three: Results

Study 1

Analyses for both the adolescent and college samples were conducted using two ANOVA models in SPSS, the first predicting change in body shape satisfaction and the second predicting change in body weight satisfaction. Each change variable was calculated by subtracting the pre-test variable from the post-test variable. For each model, experimental condition (self-objectification, self-objectification and social comparison, control) and gender were entered as fixed factors. Among the adolescent sample, 78 participants completed the experimental manipulation using their personal Instagram account. Of this sample, 11 participants were excluded from data analysis due to lack of adequate completion of the task (e.g. responses such as, "I do not post anything" or "It's just memes"). Among the remaining 67 participants, 22 were in the self-objectification condition, 23 were in the self-objectification and social comparison condition, and 22 were in the control condition.

Results of the ANOVA examining change in body shape satisfaction indicated a significant main effect of experimental condition on change in body shape satisfaction, $F(2,66) = 4.09$, $p = .021$, $\eta_p^2 = .12$, (see Figure 1). It was hypothesized that adolescents who engaged in self-objectification on social media would experience a decrease in body shape satisfaction compared to the control group (H1a). Controlling for gender, participants who were randomly assigned to the self-objectification condition did experience a decrease in body shape satisfaction ($M = -2.29$; $\sigma\bar{x} = 2.13$), but it was not significantly different from the control condition ($M = -1.19$, $\sigma\bar{x} = 2.28$). It was also hypothesized that adolescents who engaged in self-objectification *and* social comparison processes would show the highest decrease in body shape satisfaction overall (H1b).

Contrary to this hypothesis, participants who were randomly assigned to the self-objectification and social comparison condition experienced a significant increase in body shape satisfaction (M = 6.01; $\sigma\bar{x}$ = 2.26) compared to the control condition (M = -1.19, $\sigma\bar{x}$ = 2.28) and self-objectification condition (M = -2.29; $\sigma\bar{x}$ = 2.13). The main effect of gender was marginally significant, $F(1,66) = 3.67$, $p = .060$, with girls experiencing a decrease in body shape satisfaction (M = -1.61; $\sigma\bar{x}$ = 1.79) while boys experienced an increase (M = 3.31; $\sigma\bar{x}$ = 1.85). The interaction between condition and gender was not significant, $F(2,66) = 1.61$, $p = .209$. Results of the ANOVA examining change in body weight satisfaction indicated no significant main effects of condition, $F(2,66) = .21$, $p = .815$, or gender $F(1,66) = .002$, $p = .961$, and the interaction between condition and gender was not significant, $F(2,66) = .66$, $p = .523$.

Among the undergraduate sample, 571 participants completed the online version of the experimental manipulation using their personal Instagram or Facebook account. Of this sample, 30 participants were excluded from data analysis due to lack of adequate completion of the task (e.g. responses such as, “I don't have any posts on my Instagram account.” or “Not enough posts”). Seven participants were missing gender information and also excluded from the final model. Of the remaining 534 participants, 168 were in the self-objectification condition, 180 were in the self-objectification and social comparison condition, and 186 were in the control condition.

Results of the ANOVA examining change in body shape satisfaction indicated no significant main effects of condition, $F(2,533) = .002$, $p = .998$, or gender $F(1,533) = .64$, $p = .425$, and the interaction between condition and gender was not significant, $F(2,533) = 1.30$, $p = .273$. Results of the ANOVA examining change in body weight satisfaction also indicated no significant main effects of condition, $F(2,533) = .38$, $p = .685$, or gender

$F(1,533) = .94$, $p = .360$, and the interaction between condition and gender was not significant, $F(2,533) = .95$, $p = .387$. In terms of the overall experiment, it was hypothesized that the magnitude of the effect of the manipulation would be stronger among adolescents than college students (H1c). The results indicated partial support for this hypothesis, as the manipulation was significant for adolescents and not college students. However, the specific pattern of results observed in the adolescent sample was not consistent with hypotheses H1a and H1b.

Study 2

Bivariate correlations, means, and standard deviations for each variable are presented in Table 1. Results of *t*-tests assessing gender differences for each variable are also presented in Table 1. Across all variables of interest, there were 12 univariate outliers, 11 within 1.5-3x the interquartile range and one over 3x the interquartile range. All outliers represented valid data points and were retained for analyses. Missing data ranged from 0-2.7% across variables of interest and Little's test for missing completely at random was not significant, χ^2 (7) = 3.75, $p = .808$, indicating that the missing data were consistent with missing completely at random. The normality of variables of interest were assessed by examination of Shapiro-Wilk's tests and visual representations of data (normal Q-Q plots, histograms, box plots). These tests indicated that photo behavior (skewness = .42, *SE* = .21; kurtosis = -.001, *SE* = .41), emotional investment (skewness = .004, *SE* = .21; kurtosis = -.22, *SE* = .04), self-monitoring (skewness = .23, *SE* = .21; kurtosis = .01, *SE* = .41), and same-gender typicality (skewness = .25, *SE* = .21; kurtosis = 2.63, *SE* = .41) were all approximately normally distributed.

Analyses for Study 2 were conducted using hierarchical linear regression models in SPSS version 25. The models were structured to examine the impact of predictor

variables on two body-related outcomes: body satisfaction and eating disorder symptomatology. The two moderators (self-monitoring and same-gender typicality) were examined in individual models, and these models were also split by gender to examine gender differences among observed effects. Overall, this resulted in eight models, four predicting body satisfaction (self-monitoring as a moderator for girls and boys; same-gender typicality as a moderator for girls and boys) and four predicting eating disorder symptomatology (self-monitoring as a moderator for girls and boys; same-gender typicality as a moderator for girls and boys). Across all models, emotional investment and photo behavior were entered into Step 1 of the model. In Step 2, either self-monitoring or same-gender typicality was entered into the model. In Step 3, the interaction between the moderator variable entered in Step 2 (either self-monitoring or same-gender typicality) and each social media variable (photo behavior and emotional investment) were entered into the model. Regression coefficients and model statistics for each model are presented in Table 2 (boys) and Table 3 (girls).

Moderation by same-gender typicality. The first set of models examined the moderating role of same-gender typicality in the relationship between social media use and body satisfaction. None of the overall models predicting body satisfaction were significant in any step of the model among either boys or girls.

The second set of models examined the moderating role of same-gender typicality in the relationship between social media use and eating disorder symptomatology. The overall model for boys was not significant in any step of the model. For girls, Step 2 of the model predicting eating disorder symptomatology was statistically significant and explained a significantly greater amount of variance than Step 1, $F(3,66) = 3.90$, $p = .013$; $\Delta R^2 = .08$, $\Delta F\ (1,63) = 5.73$, $p = .020$. Higher emotional investment in technology

predicted higher eating disorder symptomatology (β = .27, p = .031) and higher same-gender typicality predicted lower eating disorder symptomatology (β = -28, p = .020). Step 3 of the model was also significant and explained a significantly greater amount of variance in eating disorder symptomatology than Step 2, $F(5,66) = 4.03$, $p = .003$; $\Delta R^2 = .09$, $\Delta F\ (2,61) = 3.71$, $p = .030$. Specifically, the interaction between emotional investment and same-gender typicality was significant, β = -.87, p = .009. The conditional effects of this significant interaction were explored using the PROCESS macro for SPSS and are displayed in Figure 2 (Hayes, 2017). Results indicated that the effect of emotional investment on eating disorder symptomatology was significant for girls with low (-1 *sd* from the mean) same-gender typicality, $b = 1.19$, $p = .001$, 95% CI [.50, 1.88], and marginally significant for girls with average same-gender typicality, $b = .55$, $p = .061$, 95% CI [-.03, 1.12], compared to girls with high (+1 *sd* from the mean) same-gender typicality, $b = -.09$, $p = .822$, 95% CI [-.88, .70]. Specifically, among girls with low to average same-gender typicality, higher emotional investment in technology predicted higher eating disorder symptomatology.

Moderation by self-monitoring. The third set of models examined the moderating role of self-monitoring in the relationship between social media use and body satisfaction. For boys, Step 1 in the model predicting body satisfaction was not significant, $F(2,71) = .05$, $p = .952$. Step 2 of the model, however, was significant and explained a significantly greater amount of variance in body satisfaction than Step 1, $F(3,71) = 4.41$, $p = .007$; $\Delta R^2 = .16$, $\Delta F\ (1,68) = 13.10$, $p = .001$. Within this step, higher self-monitoring predicted lower body satisfaction, β = -.42, p = .001. Step 3 of the model was significant, but did not explain a significantly greater amount of variance in body satisfaction than Step 2, $F(5,71) = 2.89$, $p = .020$; $\Delta R^2 = .02$, $\Delta F\ (3,106) = .67$, $p = .515$.

The pattern of observed results was the same for girls. For girls, Step 1 of the model was not significant, $F(2,66) = .27$, $p = .762$. Step 2 of the model was significant and explained a significantly greater amount of variance in body satisfaction than Step 1, $F(3,66) = 4.23$, $p = .009$; $\Delta R^2 = .16$, $\Delta F\ (1,63) = 12.05$, $p = .00$. Within this step, higher self-monitoring predicted lower body satisfaction, $\beta = -.44$, $p = .001$. Step 3 of the model was significant, but did not explain a significantly greater amount of variance in body satisfaction than Step 2, $F(5,66) = 2.79$, $p = .025$; $\Delta R^2 = .02$, $\Delta F\ (2,61) = .69$, $p = .508$.

The fourth set of models examined the moderating role of self-monitoring in the relationship between social media use and eating disorder symptomatology. For boys, Step 1 of the model predicting eating disorder symptomatology was not significant, $F(2,73) = .47$, $p = .627$. Step 2 of the model was significant and explained a significantly greater amount of variance in eating disorder symptomatology than Step 1, $F(3,73) = 6.64$, $p = .001$; $\Delta R^2 = .21$, $\Delta F\ (1,70) = 18.74$, $p < .001$. Within this step, higher self-monitoring predicted higher eating disorder symptomatology, $\beta = .49$, $p < .001$. Within this step, there was also a marginal effect of emotional investment, with higher levels of emotional investment predicting lower eating disorder symptomatology, $\beta = -.22$ $p = .061$. Step 3 of the model was significant, but did not explain a significantly greater amount of variance in eating disorder symptomatology than Step 2, $F(5,73) = 4.26$, $p = .002$; $\Delta R^2 = .02$, $\Delta F\ (2,68) = .76$, $p = .473$.

For girls, the first step of the model predicting eating disorder symptomatology was significant, $F(2,66) = 2.78$, $p = .070$; $R^2 = .08$. Within this step, higher emotional investment predicted higher eating disorder symptomatology, $\beta = .26$, $p = .044$. Step 2 of the model was also significant and explained a significantly greater amount of variance in eating disorder symptomatology than Step 1, $F(3,66) = 6.22$, $p = .001$; $\Delta R^2 = .15$, ΔF

(1,63) = 12.14, p = .001. Within this step, higher self-monitoring predicted higher eating disorder symptomatology, β = .42, p = .001. Step 3 of the model was also significant and explained a significantly greater amount of variance in eating disorder symptomatology than Step 2, $F(5,66) = 5.56$, $p < .001$; $\Delta R^2 = .08$, ΔF (2,61) = 3.75, p = .029. The interaction between emotional investment and self-monitoring was significant, β = -1.30, p = .008. The conditional effects of this significant interaction were explored using the PROCESS macro for SPSS and are displayed in Figure 3 (Hayes, 2017). Results indicated that the effect of emotional investment on eating disorder symptomatology was only significant for girls with low (-1 *sd* from the mean) self-monitoring, b = 1.15, p = .007, 95% CI [.33, 1.98], compared to girls with average, b = .31, p = .270, 95% CI [-.25, 87], and high (+1 *sd* from the mean), b = -.53, p = .210, 95% CI [-1.38, .31], self-monitoring. Specifically, among girls with low self-monitoring, higher emotional investment in technology predicted higher eating disorder symptomatology.

Table 1

Descriptive Information for Variables of Interest

	Boys						Girls					
Variables	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
1. Emotional Investment	1	-	-	-	-	-	1	-	-	-	-	-
2. Photo Behavior	.40**	1	-	-	-	-	.29*	1	-	-	-	-
3. Self-Monitoring	.29*	.31**	1	-	-	-	.36**	.29*	1	-	-	-
4. Same-Gender Typicality	.03	.33**	-.17	1	-	-	.07	.04	.14	1	-	-
5. Body Satisfaction	.01	-.04	-.40**	.19	1	-	-.09	-.03	-.40**	.14	1	-
6. Eating Disorder Symptomatology	-.11	.01	.42**	-.18	-.41**	1	.28*	.14	.46**	-.27*	-.61**	1
Mean	1.31	.96	.97	2.00	132.99	1.16	1.43	1.46	1.24	1.60	103.94	2.20
Standard Deviation	.70	.54	.45	.66	41.69	1.12	.73	.63	.52	.68	55.69	1.72
Mean Difference (*t*)	-1.03	-5.07**	-3.31*	3.57**	3.47**	-4.21**						

Note: Correlations between variables and descriptive information for each variable are presented for boys and girls. The results of independent samples *t*-tests that assessed mean differences in variables between girls and boys are also presented.

† p <.10, * p <.05, ** p <.00;

Table 2

		Body Satisfaction		Eating Disorder Symptomatology		
Variables	Step	Step 2	Step 3	Step 1	Step 2	Step 3
Emotional Investment	.02	.06	.60	-.12	-.15	.17
Photo Behavior	-.05	-.15	-1.13*	.05	.14	-.82
Same-Gender Typicality		.24†	.04		-.22†	-.52*
Emotional Investment X Same-Gender Typicality			-.76			-.49
Photo Behavior X Same-Gender Typicality			1.38*			1.32†
ΔR^2	.002	.05	.05	.01	.04	.05
ΔF	.08	3.29†	1.96	.45	2.93†	1.96
Emotional Investment	.03	.10	.06	-.13	-.22†	-.03
Photo Behavior	-.04	.04	-.27	.04	-.06	.06
Self-Monitoring		-.42*	-.74*		.49**	.78*
Emotional Investment X Self-Monitoring			.06			-.32
Photo Behavior X Self-Monitoring			.49			-.19
ΔR^2	.001	.16	.02	.02	.21	.02
ΔF	.05	13.10*	.67	.47	18.74**	.76

Hierarchical Linear Regression Model Outcomes for Boys

Note: Regression models examining the moderating role of perceived same-gender typicality on the relationship between social media use and body-related outcomes among adolescent boys. Standardized beta coefficients are presented.

† $p < .10$, * $p < .05$, ** $p < .001$

Table 3

		Body Satisfaction		Eating Disorder Symptomatology		
Variables	Ste	Step 2	Step 3	Step 1	Step 2	Step 3
Emotional Investment	-.09	-.10	-.44	.26*	.27*	.85*
Photo Behavior	.001	-.001	.04	.07	.07	.15
Same-Gender Typicality		.15	-.05		-.28*	.21
Emotional Investment X Same-Gender Typicality			.52			-.87*
Photo Behavior X Same-Gender Typicality			-.15			.03
ΔR^2	.01	.02	.03	.08	.08	.09
ΔF	.27	1.36	.99	2.78†	5.73*	3.71*
Emotional Investment	-.09	.05	-.31	.26*	.13	1.00*
Photo Behavior	.001	.08	.07	.07	-.001	.03
Self-Monitoring		-.44*	-.71*		.42*	1.03*
Emotional Investment X Self-Monitoring			.57			-1.30*
Photo Behavior X Self-Monitoring			-.03			.06
ΔR^2	.01	.16	.02	.08	.15	.08
ΔF	.27	12.05*	.69	2.78†	12.14*	3.75*

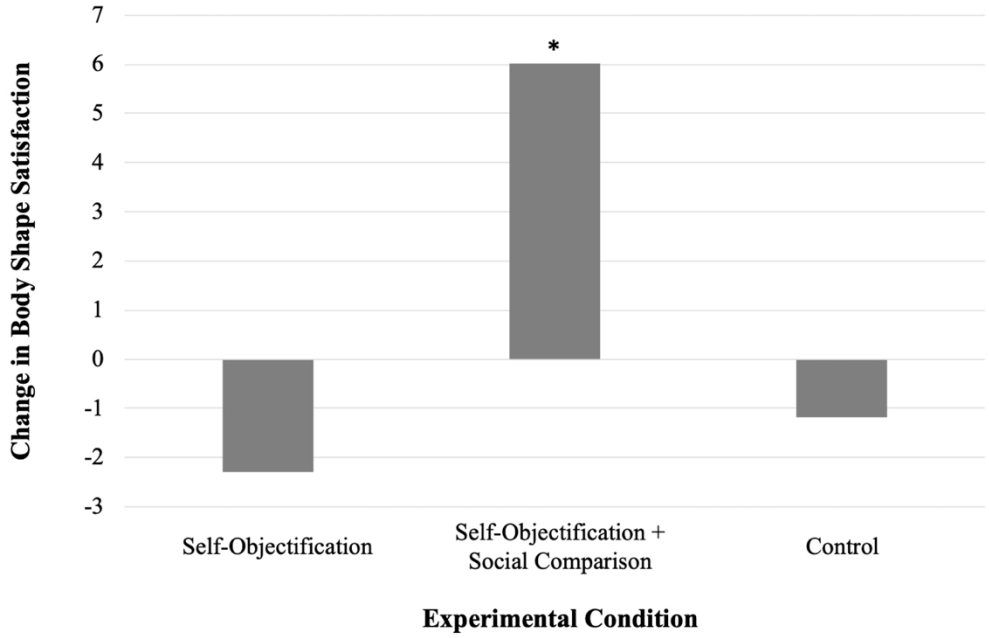
Hierarchical Linear Regression Model Outcomes for Girls

Note: Regression models examining the moderating role of perceived same-gender typicality on the relationship between social media use and body-related outcomes among adolescent girls. Standardized beta coefficients are presented.

† $p < .10$, * $p < .05$, ** $p < .001$

Figure 1

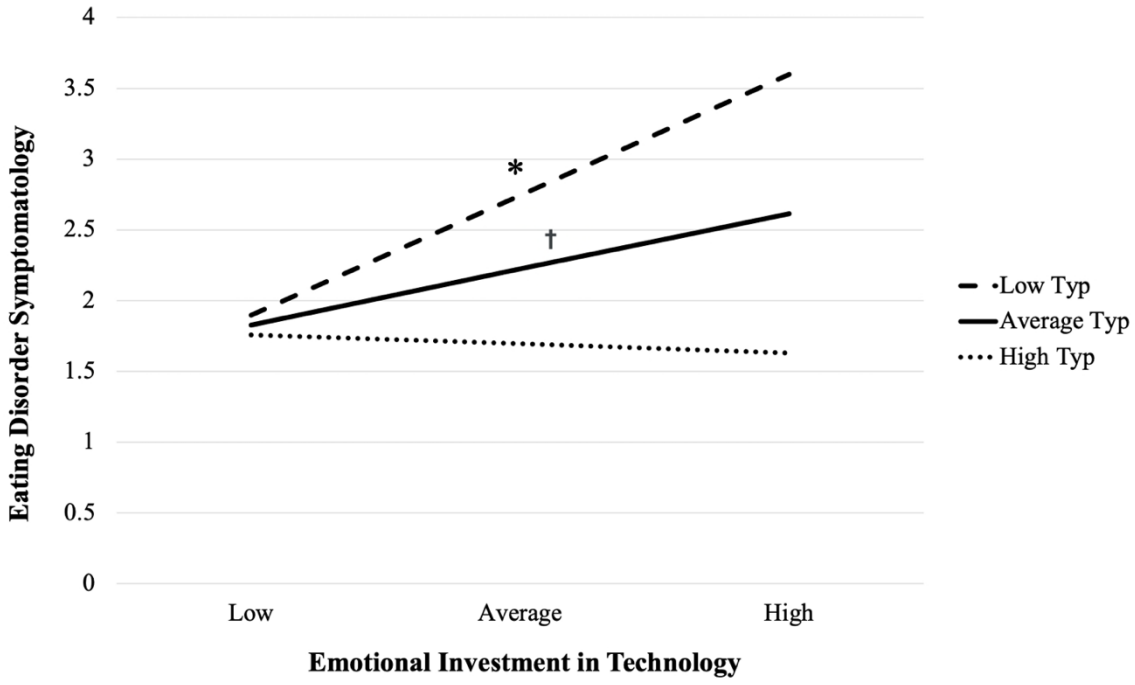
The Effect of Experimental Condition on Change in Body Shape Satisfaction Among Adolescents



Note: † $p < .10$, * $p < .05$, ** $p < .001$

Figure 2

The Interaction Between Emotional Investment and Same-Gender Typicality Among Girls

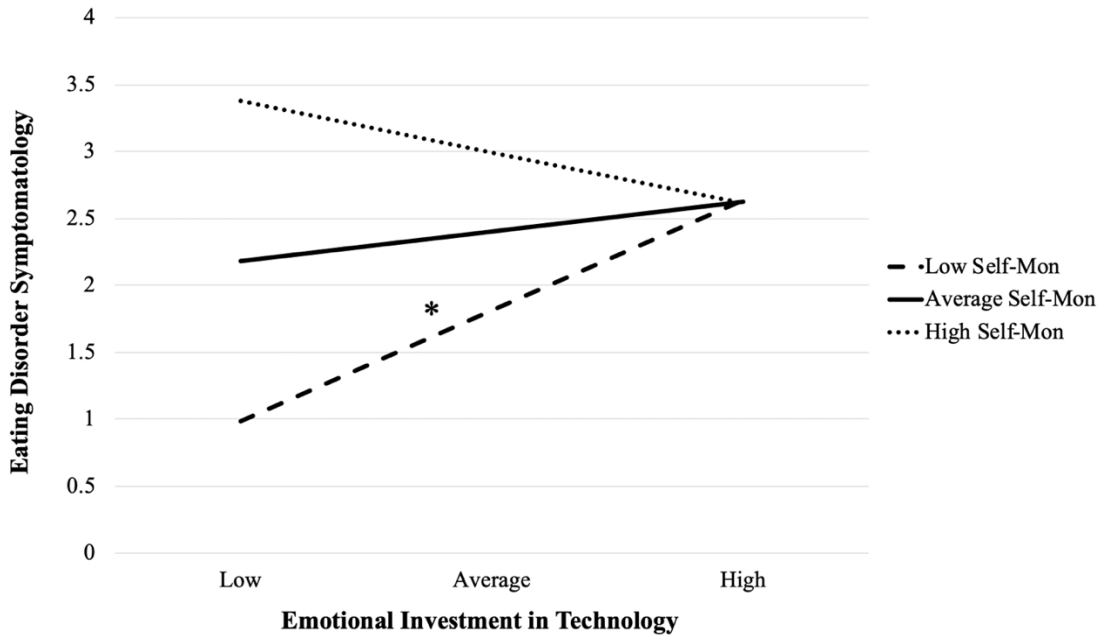


Note: This figure demonstrates the moderating role of self-perceived same-gender typicality on the relationship between emotional investment in technology and eating disorder symptomatology among adolescent girls.

† $p < .10$, * $p < .05$, ** $p < .001$

Figure 3

The Interaction Between Emotional Investment and Self-Monitoring Among Girls



Note: This figure demonstrates the moderating role of self-monitoring on the relationship between emotional investment in technology and eating disorder symptomatology among adolescent girls.

† $p < .10$, * $p < .05$, ** $p < .001$

Chapter Four: Discussion

The current study explored the impact of social media use on body dissatisfaction and eating disorder symptomatology among adolescents and college students. Across development, vulnerability to developing negative body image and risk factors for eating disorders heighten during adolescence (age 13-16), eventually evening out for the majority of individuals as they enter emerging adulthood (age 18-21; Gattario & Frisén, 2019; Rhode et al., 2016). However, exposure to media that reinforces unrealistic cultural body standards plays an important role in the development of negative body image (Grogan, 2017; Heinberg, Atlabe, & Tantleff-Dunn, 1999). The rise in popularity of social media introduces new opportunities for users to create content and receive reinforcement on their physical appearance that may exacerbate the relationship between media use and body-related outcomes.

Proposed Psychological Mechanisms

The goal of the first study (Study 1) was to explore which psychological mechanisms may drive the relationship between social media use and body dissatisfaction. Participants completed either a control task, which asked them to visit the Instagram page of a zoo, or an experimental task that prompted them to look at their own Instagram profiles. The first experimental task was designed to elicit self-objectification, asking participants to think about themselves from the perspective of the board members of a company who were looking for a new influencer to represent their brand. The second experimental task was designed to elicit both self-objectification and social comparison processes, adding that the board members of the company were *also* evaluating their peers from school. It was hypothesized that adolescents and college students who engaged in self-objectification on social media would show higher body dissatisfaction

than the control group, and that adolescents and college students who engaged in self-objectification *and* social comparison would show the highest body dissatisfaction overall. In general, the results did not indicate support for these hypotheses.

Within the adolescent sample, there was a significant main effect of condition on change in body shape satisfaction, driven by the self-objectification and social comparison task. Specifically, participants who completed the experimental prompt that included both self-objectification and social comparison had *higher* body shape satisfaction after completing the task compared to participants in the self-objectification and control conditions. This finding is not consistent with previous research documenting negative changes in body satisfaction and mood based on exposure to social media, such as viewing pre-selected images or using social media for a given amount of time (e.g. Fardouly et al., 2015; Want & Saiphoo, 2017).

The manipulation in the current study differed from previous research in ways that may explain these inconsistent findings. After reading each prompt, participants were asked to write a response that detailed what the board members of the company would think of their profile. Humans are generally motivated to maintain a positive self-image (Festinger, 1954), and existing evidence suggests that the detrimental effects of social comparison processes, specifically appearance comparisons, can be undone by conscious processing (Want, 2009). In other words, people want to feel good about themselves, and when they have enough time and cognitive energy to reason through a comparison, they are able to recover from any negative emotion they experienced as a result. Therefore, it is possible that after the experimental task prompted adolescents to compare themselves to their peers, completing the written response allowed them to engage in the necessary defensive reasoning to mitigate any negative effects.

Another possible explanation is that adolescents engaged in downward social comparisons, or compared themselves to peers they felt were inferior, which resulted in more positive self-image. On social media, adolescents choose which photos of themselves to post and have access to editing tools and filters to improve their physical appearance. Therefore, it is possible that viewing one's own photos on Instagram that were purposefully selected for display may have elicited an increase in shape satisfaction. Although this explanation is not consistent with the majority of existing literature on media exposure and body image, some studies suggest that engaging in downward social comparisons on social media can have a positive impact on body satisfaction. For example, one study by van den Berg and Thompson found that women who viewed photos of less attractive women experienced increases in body satisfaction and mood compared to those who saw photos of more attractive women (2007).

The observed effect of the self-objectification and social comparison condition on change in body shape satisfaction in the adolescent sample was not replicated in the college student sample. It is likely that the normative increases in social comparison processes and the importance of physical appearance that characterize adolescence made the adolescent sample particularly sensitive to an experimental task that elicited social comparison (Jones, 2001). This provides partial support for the hypothesis that the magnitude of the effect of the manipulation would be stronger among adolescents than college students.

Although consistently trending in the hypothesized direction, there were no significant effects of the self-objectification task on change in body shape or weight satisfaction within either sample. This lack of findings was not consistent with previous evidence suggesting that self-objectification may help explain the relationship between

social media use and body dissatisfaction (Manago et al., 2008; Salomon & Brown, 2019; Salomon & Brown, in press). However, the results of the current study do suggest that social comparison processes play a role in the relationship between social media use and adolescent body image.

Social Media Use, Body Dissatisfaction, and Eating Disorder Symptomatology

The goal of the second study (Study 2) was to explore the impact of social media use on body dissatisfaction and eating disorder symptomatology among adolescents. This study also examined the impact of individual characteristics on the relationship between social media use and body-related outcomes. It was hypothesized that higher photo behaviors and emotional investment in technology would predict higher body dissatisfaction and eating disorder symptomatology among adolescents. Previous research has documented that the relationship between social media use and negative body image is stronger and may function differently among girls than boys (Slater & Tiggemann, 2010; Grabe, Hyde, & Lindberg, 2007). Thus, the models predicting body-related outcomes for this study were run separately for boys and girls.

Consistent with trends in previous research, boys reported higher body satisfaction and lower eating disorder symptomatology than girls. However, more recent research suggests that experiences of negative body image are increasing among men (Dakanalis et al., 2015; Michaels, et al., 2013; Perloff, 2014; Rohlinger, 2002). Cultural norms surrounding gender intensify during adolescence, and boys are often held to strict standards of masculinity by peers (Hill & Lynch, 1983). These standards include maintaining an ideal body type, which for boys in Westernized cultures is a lean, muscular, toned figure (Grogan, 2017). Despite boys engaging in less self-monitoring than girls overall, boys with higher self-monitoring, or higher sensitivity to social cues

and the opinions of peers, had lower body satisfaction and higher eating disorder symptomatology than their peers (Snyder, 1986; Graziano, Leone, Musser, & Lautenschlager, 1987). When there is a discrepancy between the body an individual wants and the body an individual has, it often results in body dissatisfaction or negative emotion toward the body. It is likely that this discrepancy is more salient for boys higher in self-monitoring than their peers, and they may be more willing to engage in the necessary behaviors to achieve or maintain an ideal body shape. Although self-monitoring did not interact with social media variables for boys, these findings suggest that boys who are more attuned to what others think are at a greater risk for experiencing body dissatisfaction and eating disorder symptomatology in general.

For girls, compared to boys, westernized culture generally places a greater emphasis on the importance of physical appearance, which may explain why girls engage in more photo behaviors and seek reinforcement on their appearance more often than boys (Grogan, 2017; Salmon & Brown, 2019). For women, the ideal body type usually centers upon being thin, also emphasizing more specific feminine characteristics like large breasts or a small waist (Grogan, 2017). For adolescent girls undergoing the physical changes of puberty, consistent exposure to idealized body types in the media is associated with negative outcomes for body image (e.g. Grabe et al., 2008; Hargreaves & Tiggemann, 2003; Harrison & Heffner, 2006). The current findings suggest that how much girls care about social media is important in predicting body image, more so than their actual social media behaviors. Specifically, girls who were more emotionally invested in technology reported greater eating disorder symptomatology than girls who were less invested in technology.

However, these effects of media seem more damaging for some girls more than others. As hypothesized, self-perceived gender typicality and self-monitoring moderated the relationship between emotional investment in technology and eating disorder symptomatology. First, being emotionally invested in media predicted eating disorder symptomatology for girls with low to average self-perceived gender typicality (but not girls with high self-perceived gender typicality). It is likely that girls who are more emotionally invested in technology care more about their experiences online than their peers, which may make the discrepancy between cultural body standards and their own bodies more salient. Further, this discrepancy is likely magnified for girls who perceive themselves as less typical than their peers or women in the media. Coupled with the increased importance placed on physical appearance during adolescence, this may motivate girls to engage in behavior consistent with eating disorder symptomatology (e.g. restricting food and over-exercising) in an effort to get closer to an idealized body type.

In addition to self-perceived gender typicality, self-monitoring was also an important individual difference for girls. Consistent with findings for boys, higher self-monitoring predicted lower body satisfaction and higher eating disorder symptomatology among girls. Findings also indicated that self-monitoring only impacted the relationship between emotional investment and eating disorder symptomatology among girls with low emotional investment compared to average and high investment. In other words, once girls reached a level of average or high emotional investment in technology, individual differences in self-monitoring mattered less in terms of predicting their eating disorder symptomatology. Girls with low emotional investment in technology generally care less about their experiences online and maintaining consistent access to technology compared to their peers. Consistent with hypotheses, higher self-monitoring, or higher sensitivity to

social cues and expectations, predicted higher eating disorder symptomatology within this group of girls.

Girls who engage in more self-monitoring are likely more aware of the cultural body standards they encounter in the media. Individuals high in self-monitoring are also more willing to change their behavior to meet the expectations of others, in this case to reach or maintain an ideal body. For girls who are not emotionally invested in technology, self-monitoring seems to drive engagement in eating disorder symptomatology, and girls in this group with low self-monitoring had the lowest eating disorder symptomatology overall. However, when girls are highly emotionally invested in technology, they exhibit similar amounts of eating disorder symptomatology regardless of their level of self-monitoring. Social media is saturated with positive reinforcement for physical appearance, and these results suggest that once girls buy into their experiences online, they are more likely to engage in eating disorder symptomatology. Taken together, these results suggest that girls' emotional investment in technology plays an important role in the relationship between social media use and eating disorder symptomatology. The results also suggest that girls who feel less typical for their gender may be at an elevated risk for developing eating disorder symptomatology, as well as girls with high emotional investment in technology and a heightened sensitivity to their peers.

Limitations & Future Directions

Although the current study provides insight on the proposed research questions, there are several limitations that affect the interpretation and generalizability of the results. First, the samples included are predominately White and may not generalize to the broader, racially-diverse population of the United States. Previous research has

demonstrated that body image and eating disorder symptomatology can vary by race (e.g. Kronenfeld, Reba-Harrelson, Von Holle, Reyes, & Bulik, 2010) and future studies should address potential differences in the relationship between social media use and body-related outcomes based on race. In Study 1, it is possible that the experimental task designed to prompt self-objectification was not explicit enough to elicit a response. Future research should explore more ecologically-valid ways to elicit self-objectification and social comparison among participants. For example, adolescents watching someone look at or evaluate their Instagram profile, even if they do not see the results of the evaluation, may increase the salience of objectification in an experimental manipulation. If adolescents see their peers getting evaluated too, that may also elicit social comparison processes. Further, future studies should explore the individual effects of upward and downward social comparisons on social media among adolescents.

Due to the global pandemic that escalated in the Unites States during the Spring of 2020, the sample size for Study 2 was smaller than anticipated and the results should therefore be interpreted with caution. The results of Study 2 are also correlational and do not provide information about the direction of the observed effects. For example, it is possible that individuals who feel negatively toward their bodies or with higher eating disorder symptomatology use social media differently than their peers. Future research should investigate these relationships longitudinally to examine how social media use affects body dissatisfaction and eating disorder symptomatology over time across adolescence. Finally, although the current study yielded information about the role of individual characteristics in the relationship between social media use and body-related outcomes for girls, the findings were not significant for boys. Future research should explore what individual factors may impact these relationships for boys. Similarly, as

cultural body ideals differ for girls and boys, it is possible that the measure of eating disorder symptomatology did not capture the full range of behavior boys might engage in to obtain a certain body type, such as taking anabolic steroids to gain muscle mass.

Implications

Overall, the results of the current study suggest that emotional investment in technology is associated with higher eating disorder symptomatology among adolescents. The findings also suggest that these relationships are different for boys and girls, and that certain individuals may be at a greater risk of experiencing body dissatisfaction and eating disorder symptomatology than others. Despite associations between social media use and negative outcomes for body image, parents and adults should recognize that social media use is a distinguishing feature of the modern adolescent experience. Instead of banning social media altogether, parents and adults should help adolescents navigate their experiences online and start conversations about the idealized cultural body standards portrayed by media. If adolescents, especially those who are particularly vulnerable to the development of negative body image, understand the potential consequences of certain kinds of social media use, they may be able to use social media in more intentional ways.

Appendix

Study Measures

For the following questions, please draw a line on the scale that represents how you feel right now.

EXAMPLE: How do you feel about your grades in school *right now*?

Extremely Unsatisfied _____ Extremely Satisfied *

1. How do you feel about your body shape *right now*?

Extremely Unsatisfied _____ Extremely Satisfied *

2. How do you feel about your weight *right now*?

Extremely Unsatisfied _____ Extremely Satisfied *

* Scales given to participants were 100 mm long

Do you have an Instagram account? (circle your answer)	Yes	No

If yes, please use your Instagram account for the following activity. If you do not have an Instagram account, you can use Facebook. If you do not have an Instagram or Facebook account, please skip to page 4.

Instagram Activity (Self-Objectification Condition)

Open the Instagram app on your phone and go to your own profile. The board members of a company are looking for social influencers to represent their brand. They look at your Instagram profile and evaluate it. Go to your own Instagram profile and look over it for a few minutes, what do you think their evaluation would say? For example, how would they rate the overall quality and variety of your posts? Please write your response below.

Do you have an Instagram account? (circle your answer)

If yes, please use your Instagram account for the following activity. If you do not have an Instagram account, you can use Facebook. If you do not have an Instagram or Facebook account, please skip to page 4.

Instagram Activity (Self-Objectification + Social Comparison Condition)

Open the Instagram app on your phone and go to your own profile. A company is looking for a social influencer to represent their brand. They are evaluating several Instagram profiles, including you and other kids at your school. Go to your own Instagram profile and look over it for a few minutes, what do you think their evaluation would say? For example, how would they rate the overall quality and variety of your posts? Please write your response below.

Do you have an Instagram account? (circle your answer)

If yes, please use your Instagram account for the following activity. If you do not have an Instagram account, you can use Facebook. If you do not have an Instagram or Facebook account, please skip to page 4.

Instagram Activity (Control Condition)

Open the Instagram app on your phone and go to the profile for the Louisville Zoo (@louisvillezooofficial). How do you think this zoo compares to other zoos? If someone looked at this zoo's profile, what do you think they would think about it? For example, how would they rate the overall quality and variety of the posts? Please write your response below.

For the following questions, please draw a line on the scale that represents how you feel right now.

1. How do you feel about your body shape *right now*?

Extremely Unsatisfied _____ Extremely Satisfied *

2. How do you feel about your weight *right now*?

Extremely Unsatisfied _____ Extremely Satisfied *

* Scales given to participants were 100 mm long

Which of these social media sites do you use? (check all that apply)

__ Twitter
__ Instagram
__ Facebook
__ Snapchat
__ YouTube
__ TikTok
__ Tumblr
__ Reddit

Which of these social media sites do you use most often? (rank order 1 = most, 8 = least)

__ Twitter
__ Instagram
__ Facebook
__ Snapchat
__ YouTube
__ TikTok
__ Tumblr
__ Reddit

About how often do you use social media? (circle one answer)

Not at all	About once a week	Several times a week	About once a day	Several times a day	Almost constantly

If you have an iPhone or Samsung Galaxy phone, please follow the directions that correspond to your phone below. If you do NOT have an iPhone or Samsung Galaxy, please continue to the next set of questions on Page 6.

What type of phone do you have? (circle one answer)

iPhone	Samsung Galaxy	Other (Skip to pg 6)

<u>If you have an iPhone</u>

1. Go to "Settings" → "Screen Time"
2. Click on "See All Activity"
3. Make sure "Week" is selected
4. Record the numbers listed below

Daily Average (black number at the top) **____ h ____ m**

Social Networking (dark blue number below the graph) **____ h ____ m**

Entertainment (light blue number below the graph) **____ h ____ m**

Total Screen Time (number at the bottom of the box) **____ h ____ m**

Twitter **____ h ____ m**

Instagram **____ h ____ m**

Facebook **____ h ____ m**

Facebook Messenger **____ h ____ m**

Snapchat **____ h ____ m**

YouTube **____ h ____ m**

TikTok **____ h ____ m**

Tumblr **____ h ____ m**

Reddit **____ h ____ m**

<u>If you have a Samsung Galaxy</u>

1. Go to "Settings" → "Device Care"
2. Click on "Battery"
3. Make sure that "1 week" is selected at the top
4. Record the active numbers for each application listed below

Twitter **____ h ____ m**

Instagram **____ h ____ m**

Facebook **____ h ____ m**

Facebook Messenger **____ h ____ m**

Snapchat **____ h ____ m**

YouTube **____ h ____ m**

TikTok **____ h ____ m**

Tumblr **____ h ____ m**

Reddit **____ h ____ m**

Please indicate how much you agree with the following statements by circling an answer.

I get anxious when I don't have my cell phone	Strongly Disagree	Disagree	Agree	Strongly Agree
I get anxious when I don't have the Internet available to me	Strongly Disagree	Disagree	Agree	Strongly Agree
I am dependent on my technology	Strongly Disagree	Disagree	Agree	Strongly Agree

Please indicate how often you do these behaviors on social media by circling an answer.

Post photos of yourself with friends and family	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
Update your profile photo	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
View friends' photos that they've added of you	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
View friends' photos of themselves	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
View photos of people you follow that you don't know in real life	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
Post a selfie or photo of yourself	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
Comment on friends' photos	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
Comment on photos of people you follow that you don't know in real life	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on

Tag yourself in friends' photos	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
Untag yourself in friends' photos	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
Delete a photo you posted of yourself if it doesn't get enough likes	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on
Ask a friend if they like a photo of you before you post it	Almost Never	Rarely	Once in a while	Often	Nearly every time I log on

Please indicate how often you feel this way by circling an answer.

I am embarrassed when I am with a group of people and I am the only one ordering food	Never	Sometimes	Often	Always
I compare my body to other people's bodies when I go to a social gathering	Never	Sometimes	Often	Always
I get very upset when I weigh myself and I have gained a few pounds	Never	Sometimes	Often	Always
I can see my body getting fatter when I eat a meal	Never	Sometimes	Often	Always
I believe I am fatter than most people say I am	Never	Sometimes	Often	Always
I feel very competitive with other people who have better bodies than I do	Never	Sometimes	Often	Always
I feel guilty or sad after I eat something fatty	Never	Sometimes	Often	Always

Please indicate how often you have done these behaviors over the past two weeks by circling an answer.

Over the past 14 days...

...Have you been trying to cut down on food to control your weight or shape?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you gone for long periods of time (8 hours or more) without eating anything to control your shape or weight?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you tried not to eat any foods you like to control your weight and shape?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you tried to keep to any strict rules about eating to control your weight or shape? For example, calorie limit, a set amount of food, or rules about what and when you should eat?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you wanted your stomach to be empty?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you felt guilty after eating because of the effect on your shape and weight?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you eaten what other people would think was a very large amount of food?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you felt that you lost control and ate too much?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you made yourself sick (vomit) to control your shape or weight?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you taken laxatives to control your shape or weight?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day

...Have you taken diuretics to control your shape or weight?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day
...Have you exercised hard to control your shape or weight?	No days	1-2 days	3-6 days	7 days	8-10 days	12-13 days	Every day

Please indicate how true these statements are for you by circling an answer.

There are many things I would only tell to a few of my friends	Not at all true	A little true	Medium true	Very true
I sometimes wear some kinds of clothes just because my friends are wearing that kind	Not at all true	A little true	Medium true	Very true
I like to know how my classmates expect me to act	Not at all true	A little true	Medium true	Very true
I act better when my teacher is in the room than when my teacher is out of the room	Not at all true	A little true	Medium true	Very true
When I don't know what to wear, I call my friends to see what they are going to wear	Not at all true	A little true	Medium true	Very true
Even if I am not having a good time, I often act like I am	Not at all true	A little true	Medium true	Very true
Sometimes I clown around so my classmates will like me	Not at all true	A little true	Medium true	Very true
When I am not sure how to act I watch others to see what they do	Not at all true	A little true	Medium true	Very true
I laugh more when I watch funny TV shows with other people than when I watch them alone	Not at all true	A little true	Medium true	Very true
When I'm with my friends I act different than I do with my parents	Not at all true	A little true	Medium true	Very true
When I'm afraid of someone I try to be nice to them so they will not bother me	Not at all true	A little true	Medium true	Very true

I try to figure out how each teacher wants me to act and then that's how I try to act	Not at all true	A little true	Medium true	Very true
There are some things about me that I wouldn't want to tell anyone	Not at all true	A little true	Medium true	Very true
I feel embarrassed when I don't have the same kind of clothes as my classmates	Not at all true	A little true	Medium true	Very true
When a new person comes to school, I listen to my classmates before I decide whether I like the new person	Not at all true	A little true	Medium true	Very true
Sometimes I help my parents without them asking me, so they will let me do something I want to do later	Not at all true	A little true	Medium true	Very true
I can make people think I'm happy even if I'm not happy	Not at all true	A little true	Medium true	Very true
I can be nice to people I don't like	Not at all true	A little true	Medium true	Very true
I feel unhappy when I don't have the things that my friends have	Not at all true	A little true	Medium true	Very true

Please indicate how much you agree with each statement by circling an answer.

I feel like I am just like **boys** my age	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel I fit in with **boys**	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel I am a good example of being a **boy**	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel that the things I like to do in my spare time are similar to what **boys** like to do	Strongly Disagree	Disagree	Agree	Strongly Agree

I feel that the kinds of things I'm good at are similar to what most **boys** are good at	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel that my personality is similar to most **boys'** personalities	Strongly Disagree	Disagree	Agree	Strongly Agree

I feel like I am just like **girls** my age	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel I fit in with **girls**	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel I am a good example of being a **girl**	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel that the things I like to do in my spare time are similar to what **girls** like to do	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel that the kinds of things I'm good at are similar to what most **girls** are good at	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel that my personality is similar to most **girls'** personalities	Strongly Disagree	Disagree	Agree	Strongly Agree

Please answer the following questions about yourself:

What is your age? _____

What is your race/ethnicity? _____

What is your gender? _____

What is your sexual orientation? _____

What is your height? _____

What is your weight? _____

Have you participated in any organized athletic activities over the past three years?

(For example, sports teams in or outside school)

Yes	No

What were the athletic activities you participated in?

About how often did you participate in these athletic activities in a given week?

1 day	2 days	3 days	4 days	5 days	6 days	Everyday

Do you think your physical development is earlier or later than your peers?

Much earlier	Somewhat earlier	About the same	Somewhat later	Much later

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Ilyssa Paige Salomon

Education

M.S.	Experimental Psychology, May 2017 Thesis: "The Selfie Generation: Examining the Relationship Between Social Media Use and Adolescent Body Image" University of Kentucky, Lexington, KY Advisor: Dr. Christia Spears Brown, Ph.D.
B.A.	Psychology, May 2014 University of Miami, Coral Gables, FL Cum Laude

Awards and Honors

2019	Outstanding Teaching Assistant Award in College of Arts and Sciences
2019	Selected member of Inclusive Pedagogies Graduate Learning Community
2015-2020	University of Kentucky Graduate Travel Award

Professional Positions

Graduate Teaching Assistant, Department of Psychology, University of Kentucky (Fall 2015-Fall 2016; Summer 2017-Spring 2020)

Graduate Research Fellow, Center for Equality and Social Justice, University of Kentucky (January 2017-May 2019)

Publications

Salomon, I., & Brown, C.S. (in press) That selfie becomes you: Examining selfies as a form of self-objectification. *Media Psychology.*

Salomon, I., & Brown, C.S. (in press). Engage, ignore, stand-up: Exploring how and why adolescents respond to sexual harassment. *Journal of Adolescent Research.*

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