

The Impact of Criticism and Social Media on College Females' Mental Health

by

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Key Words: Social networking, eating disorders, depression, anxiety, college women

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Abstract

Research has shown that utilizing social media sites and receiving weight-teasing or critical comments about one's body appearance can lead to depression, anxiety, and disordered eating behaviors. However, research examining all three constructs together is lacking. Using objectification theory (Fredrickson & Roberts, 1997) and social comparison theory (Festinger, 1954) as the theoretical framework, this quantitative correlational design utilizes a cross-sectional survey methodology to explore the intersecting relationships of social media usage, criticism, disordered eating behaviors, depressive symptoms, and anxiety symptoms in females in college between the ages of 18-24. Instruments used in the study included a modified version of the Social Hassles Questionnaire (Muscat & Long, 2008), the EDE-Q (Fairburn & Beglin, 1994), and the PHQ-9 (Spitzer et al., 1999), and the GAD-7 (Spitzer et al., 2006). Results indicated that there are relationships among emotional reaction to critical comments and DE, anxiety, and depression.

Key Words: Social networking, eating disorders, depression, anxiety, college women

Dedication

To my mom and dad. We did it! I love you!

“I knew you were on my side even when I was wrong. And I love you for giving me your eyes, for staying back and watching me shine...” -Taylor Swift

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CHAPTER ONE

Introduction

In a 2021 *New York Times* opinion article, *New York Times* bestselling author Roxanne Gay said, “After a while, the lines blur, and it’s not clear what friend or foe look like, or how we as humans should interact [on social media] [...] everything starts to feel like an attack. [...] It becomes harder and harder to distinguish good-faith criticism from pettiness or cruelty.” In addition, social media provides quick and easy access to celebrities, politicians, friends, family, and strangers. While this could all be beneficial, unregulated comments made on social media could become an issue for mental health. While research has been conducted studying the impact of social media usage on mental health issues in numerous populations, there is a literature gap examining the effects of critical comments received on social media on mental health, specifically disordered eating behaviors, depression, and anxiety. This study aims to explore the impact of critical comments made on social media on disordered eating behaviors, depression, and anxiety in women between the ages of 18-24.

Social media can be a mixed blessing in today’s world. While it can be utilized safely and is a valuable resource to receive critical information about the world quickly and succinctly, the constant barrage and influx of information relentlessly being pushed to phones and through other technology can become overwhelming at best and debilitating at worst. 90% of U.S. citizens between 18-29 utilize social media sites, with women more active on social media than men (Pew, 2019). Social media and the college experience have become so inherently interwoven that posting inappropriate social media comments has been normalized, a rite of passage (Bowen & Sanderson, 2012; Miller et al., 2010; Peluchette & Karl, 2009). Moreover, during the COVID-19 pandemic, social media usage significantly increased due to lock-down orders and information

seeking (Wold, 2020). While social media can be a valuable tool for garnering information quickly, it can also become overwhelming and be linked to mental health issues (Becker et al., 2011; Aalbers et al., 2019; Vannucci et al., 2017). Research has shown that passively using social media is associated with higher depressive symptoms (Aalbers et al., 2019), increased risk of eating pathology in women (Becker et al., 2011), and more significant anxiety symptoms in emerging adults (Vannucci et al., 2017). *Passive social media use* has been defined as “scrolling through news feeds or browsing photographs of friends” (Aalbers et al., 2010). Although the psychological impact of print media, broadcast media, and advertisements have been broadly studied, research is needed to examine the impact of criticism received on social media and the impact of those comments on mental health.

Traditional media forms such as television, magazine advertisements, and movies have been found to have an overwhelming impact on body image in women (Harper & Tiggemann, 2008). Using fashion magazines, Harper and Tiggemann (2008) conducted a study to test the influence of fashion magazines on body image in undergraduate females (n=90). They found that females who consistently read fashion magazines reported higher levels of self-objectification ($F(1, 86)=4.47, p<.05$), social physique anxiety ($F(1, 86)=4.38, p<.05$), mood dysregulation ($F(1, 85)=7.76, p<.05$), and body dissatisfaction ($F(1, 85)=12.48, p<.05$). Furthermore, research has found that looking at a ‘thin-and-beautiful’ media image for just minutes can lead to negative body image (Yamamiya et al., 2005). While media has been linked to negative body image, it has also been linked to depression and anxiety symptoms. Recently, due to the Covid-19 pandemic, research has focused on the effects of media on depression and anxiety and has uncovered that increased use of media and being subjected to the Covid-19 “infodump” led to higher depression and anxiety symptoms in the general population (Wu et al. 2021).

Research has established that anxiety stemming from one's appearance and body dissatisfaction can be a result of critical comments made about one's body (Dion et al., 1990; Menzel et al., 2010; Neumark-Sztainer & Haines, 2004; Schwitzer & Choate, 2015; Wetheim et al., 2004). Furthermore, teasing and restrictive eating have been associated with disordered eating behaviors, the internalization of the thin ideal, and depressive symptoms (Brown et al., 1989; Liberman et al., 2001; Shroff & Thompson, 2006; Thompson et al., 1995). Research has concluded that 72% of college-aged females have experienced teasing related to their body appearance during childhood and adolescence (Cash, 1995). Additionally, weight-related teasing is omnipresent throughout childhood to adulthood (Haines et al., 2013), and weight-related comments may be expected in young adults (Haines et al., 2013) with females, in general, the most common victims of negative weight-related comments (Eisenberg et al., 2013). While research has shown that utilizing social media sites and receiving weight-teasing or critical comments about one's body appearance can lead to depression, anxiety, and disordered eating behaviors, research examining all three constructs is lacking. Therefore, this study aimed to examine the linkage between receiving critical comments about weight/body appearance via social media and depression, anxiety, and disordered eating behavior in females between the ages of 18-24.

Disordered Eating/Eating Disorders, Depression, & Anxiety

Disordered Eating/Eating Disorders

Approximately 28.8% of the U.S. population will have an eating disorder in their lifetime, with females being two times more likely to have an eating disorder (Deloitte Access Economic, 2020). Furthermore, 10,200 deaths per year directly result from an eating disorder, equating to an eating disorder-related death every 62 minutes (Deloitte Access Economics, 2020;

Eating Disorders Coalition, 2016; Smink et al., 2021). While eating disorders and disordered eating behavior are often used interchangeably, there is a difference between the terms.

Disordered eating can exist without a diagnosed eating disorder and arises when participating in atypical eating patterns and/or food behaviors regularly. This can lead to overly monitored weight and caloric intake, eventually developing into a diagnosable eating disorder. *Eating disorders* are a pathology defined by the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) as “persistent disturbance of eating or eating-related behavior that results in the altered consumption of food and that significantly impairs physical health of psychosocial functioning” (American Psychiatric Association, 2013, p. 329). Eating disorders can include diagnoses such as Anorexia Nervosa, Bulimia Nervosa, and Binge-eating disorder. While one can exhibit symptoms of disordered eating behaviors, a diagnosable eating disorder may not be present.

On the other hand, an eating disorder always includes some form of disordered eating behavior or pattern. Atypical eating behaviors often associated with disordered eating and eating disorders can stem from unregulated emotions and feelings of losing control and lead to overly monitored weight and caloric intake (Beals & Manore, 1994). Additionally, according to the DSM-5, eating disorders can be comorbid with issues such as depression and anxiety (American Psychiatric Association, 2013). Studies have shown that over half of women who present with anorexia also have an anxiety disorder (Bulik, 2002). In addition, women with anorexia may present with symptoms consistent with depression, including a flat affect, feelings of hopelessness, and suicidal ideation and attempts (Bulik, 2002). Furthermore, according to Bulik (2002), those diagnosed with an eating disorder are typically described as having low self-

esteem, feelings of loss of control, interpersonal sensitivity, anxiousness, perfectionistic tendencies, and dysfunctional thought, among other symptoms.

Recovery rates for those living with a chronic eating disorder are meager; only half of the individuals who suffer from anorexia achieve a full recovery twenty-one years after the onset of symptoms (Zipfel et al., 2000). Females between the ages of 15 and 24 who suffer from anorexia have mortality rates ten times higher than all other causes of death (Fichter & Quadflieg, 2016; Smink et al., 2012). Additionally, eating disorders have the highest mortality rate of any mental illness, resulting in a fatality every 62 minutes (Eating Disorders Coalition, 2016; Smink et al., 2012). Death from an eating disorder can occur in many ways, including death by suicide or biological failure stemming from infection or starvation (Sullivan, 2002).

Social media and disordered eating/eating disorders.

Research has established correlations between social media usage and disordered eating behaviors/eating disorders or body image concerns (Fardouly & Vartanian, 2015; Hummel & Smith, 2015; Meier & Gray, 2014; Mabe et al., 2014; Mehdizadeh, 2010; Tiggemann & Slater, 2013). For example, in their study of 185 students (mean age of 18.73 (SD = 1.20), Hummel and Smith (2015) found that when individuals seek feedback on Facebook and receive a high number of comments, they are more likely to report disordered eating behavior ($b = 0.002$, $t [153] = 1.7$, $p = .05$). In addition, Santarossa and Woodruff (2017) found in their sample of 147 students between the ages of 18-27 that self-esteem is influenced by problematic use of social media, social media usage, number of followers on social media, and social media activity ($F(11, 135) = 6.515$, $p \leq .001$). Researchers speculated that this is due to social media, specifically, photographs uploaded to social media, being a primary communication platform for these students. Therefore, appearance conversations were being had over these social media outlets.

This, the researchers speculated, may act to strengthen or magnify already existing body image issues. Furthermore, the researchers found that problematic use of social media, social media usage, number of followers on social media, and social media activity also correlated with eating disorder symptoms and concerns ($F(11,135) = 3.981, p \leq .001$) (Santarossa & Woodruff, 2017). The researchers again speculated that this was due to social media's natural social comparison environment and that users are more likely to post images where they feel like they are portrayed positively. This could eventually lead to an upwards social comparison where viewers compare themselves to posted images online.

Depression

The DSM-5 defines depression as “[...] the presence of sad, empty, or irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual’s capacity to function” (American Psychological Association, 2013, pp. 155). Other symptoms of depression can include frequent depressed mood, diminished interest in activities, significant weight fluctuations, and feelings of worthlessness or guilt. Major depressive disorder impacts approximately 17.3 million adults in the United States every year, appearing more prevalent in women than men (Kessler et al., 2003; National Institute of Mental Health, 2017). 36.4% of college students report depressive symptoms, and around 25% of university counseling center clients are prescribed psychotropic medications (Mistler et al., 2012). This may be because college students undergo large amounts of stress from childhood to adulthood. While transitional times are difficult for individuals of any age, college comes with newfound autonomy, increased academic pressures, financial independence, a new social realm to navigate, and an entirely new environment to traverse than what they may have previously been immersed in (Arnett, 1994; Hicks & Heastie, 2008).

Additionally, psychopathology often presents in late adolescence and the early '20s, the traditional college age. Due to the novel coronavirus pandemic, depression rates among university students have increased recently. Early reports show that college students have reported at least a 5% increase in depressive symptoms in the early stages of the COVID-19 lockdown (The Healthy Minds Network, 2020). Furthermore, depression shares comorbidity with eating disorders, with 33-50% of anorexia patients having a comorbid mood disorder (Ulfvebrand et al., 2015).

Social media and depression

Correlations between social media usage and depression (Frison & Eggermont, 2016) or precursors to depression such as increased loneliness (Mellor et al., 2008), decrease in well-being (Verduyn et al., 2015), envy (Tandoc et al., 2015), and reduction in the sense of belonging (Tobin et al., 2015) has been well established. In their 2021 meta-analysis, Cunningham and colleagues (2021) found that the more time spent on social media, the greater the chances of depression symptoms (mean effect size = 0.11, $k = 24$). Furthermore, Brunborg & Andreas (2019) found that in their sample of 763 adolescents, increased usage of social media was correlated with an increase in depressive symptoms ($b = 0.13$ [95% CI: 0.01, 0.24] over six months. Self-reported Facebook and Instagram usage is positively correlated to symptoms of depression (Donnelly & Kuss, 2016; Lup et al., 2015; Rosen et al., 2013; Tandoc et al., 2015). In their cross-sectional online study using 103 young adults between the ages of 18-35, Donnelly and Kuss (2016) found that Instagram use ($\beta = .24$, $p \leq .05$) and social media use in general ($\beta = .32$, $p = .001$) were significant predictors of depression. Another study conducted by Lup and colleagues (2015) found that in their sample of 117 18-29-year-old self-identified Instagram users, Instagram use was associated with depressive symptoms (estimate =0.16, SE =0.06 [95%

CI 0.04 to 0.28], $p = 0.012$). In their survey of 736 college students, Tandoc and colleagues (2015) found that Facebook usage could lead to feelings of envy, leading to depression. In their sample of 255 students, with an average age of 22, Laukner and colleagues (2018) found that Tumblr users had significantly higher levels of depression (than those who did not have Tumblr).

Anxiety

Anxiety is the “anticipation of future threat” and differs from fear in that fear is an “emotional response to real or perceived imminent threat” (American Psychological Association, 2013, pp. 189). Anxiety disorders can include generalized anxiety disorder, agoraphobia, and panic disorder. Symptoms of anxiety can include but are not limited to a racing heart, trembling, sweating, chest pain, and feelings of choking and/or loss of control (American Psychological Association, 2013, pp. 209). In addition, anxiety disorders are often comorbid with eating disorders (American Psychological Association, 2013, pp. 333, 338, 344, 349, 353). The comorbidity of anxiety and disordered eating may be associated because when people are suffering from anxiety, this can lead to feelings of losing control. To achieve a sense of control, some people may develop healthy or unhealthy coping mechanisms to help gain and maintain control over an aspect of their lives, such as their eating behaviors or how much weight they are gaining or losing.

Research has found that the comorbidity between anxiety and eating disorders is high. Swinbourne and colleagues (2012) unearthed that in their study of 152 women receiving treatment for an eating disorder, 65% of those women also met the criteria for at least one anxiety disorder, with 69% of those reporting the onset of their anxiety symptoms as a predecessor to their eating disorder. Social phobia (42%), post-traumatic stress disorder (26%), and generalized anxiety disorder (23%) were the most common comorbid disorders to eating

disorders (Swinbourne et al., 2012). In addition, 13.5% of the women in their study who presented initially with an anxiety disorder also met the criteria for an eating disorder, with 71% of those women reporting the onset of their anxiety symptoms heralding their eating disorder (Swinbourne et al., 2012). Anxiety has been ranked as the top presenting concern among college students (Mistler et al., 2012). This can be due to several factors such as high course loads, high levels of stress, or perfectionism tendencies, but college students' major life transition must be acknowledged. For many students, college is the first time they have lived away from their parents and have spent more time independently. Compounded with their newfound adulthood and the stresses that come from an academic setting, it is no wonder that anxiety has presented so prevalently in the college population.

Social media and anxiety.

Social media usage has been correlated to anxiety and anxiety symptoms (Campisi et al., 2012; Nesi & Prinstein, 2015; Andreassen et al., 2016). To correlate social media usage to anxiety symptoms in emerging adults, Vannucci and colleagues (2017) found that in their sample of 563 emerging adults, participants reported spending an average of 6.63 (SD=6.44) hours per day on social media, with females reporting an average of 5.86 hours per day (SD=5.36). More time spent on social media was significantly correlated with more significant anxiety symptoms ($B=0.74$, 95%CI=.059-0.90, $p<0.001$) (Vannucci et al., 2017). Social media usage has also been correlated to anxiety and sleep issues in adolescents (Woods & Scott, 2016). In a sample of 467 adolescents between the ages of 11-17, 47% of participants who engaged in social media usage were classified as anxious ($r = .21$, $p <.001$), and social media usage also correlated with poorer sleep quality ($r = .24$, $p<.001$). Facebook usage has also been correlated with state anxiety (Xie & Karan, 2019).

In a 2019 study, researchers found that Facebook use predicted state anxiety with higher usage leading to higher levels of state anxiety ($\beta=0.567$, $p < .001$) (Xie & Karan, 2019). Furthermore, Xie and Karan (2019) found that trait anxiety positively predicts both Facebook addiction (defined as behavioral patterns of obsessively checking social media) ($\beta=0.121$, $p < .05$) and state anxiety ($\beta=0.119$, $p < .05$). In addition, time spent on Facebook has been correlated with higher levels of social anxiety (Anderson et al., 2012). In their qualitative study examining Facebook usage and how it may contribute to anxiety, Calancie and colleagues (2017) discovered participants who sought approval via social media outlets and were conscious of likes they received on social media, how many likes they received compared to their friends, and receiving fewer likes than their friends led to feelings of inadequacy. Furthermore, participants in the study stated that the anonymity of social media allows people to be meaner to each other (Calancie et al., 2017). Finally, the researchers found that Facebook use can trigger excessive rumination, social comparison, fear of judgment, approval-seeking, and privacy concerns, all of which can be used to characterize anxiety disorders (Calancie et al., 2017).

Theory Related to Anxiety, ED, Depression

Research has determined a few possible explanations for individuals developing disordered eating, eating disorders, anxiety, and depression. One explanation is that cultural, individual, and biological risk factors such as mental health status contribute to developing these pathologies (Jacobi et al., 2004; Stice, 2002). Women who present with a pathological eating disorder typically respond negatively to remarks made about their bodies (Lask & Bryant-Waugh, 2000; Palmer, 1998). As a result, reactions to remarks made about their body may predict the onset of disordered eating behaviors (Palmer, 1998; Stice, 1998). These reactions may be explained by the objectification theory and the social comparison theory.

Objectification Theory.

Reactions associated with disordered eating behavior, depression, and anxiety are consistent with the objectification theory. The objectification theory postulates that the degree of negative responses such as adverse mental health outcomes, self-esteem issues, and self-objectification can be anticipated through the degree to which societal contexts emphasize a women's genuine opinions or observer's perceptions of her body (Fredrickson & Roberts, 1997). Frequently, women experience sexual objectification via individual body parts. This phenomenon encompasses their whole being down to one body part, such as their legs or thighs, instead of being considered by their entire body or inner qualities (Bartky, 1990). External objectification can, in turn, lead to self-objectification, which then may develop into body monitoring, body shame, depressive symptoms, and/or anxiety symptoms (Moradi, 2010). Women who are raised in cultural norms that limit a woman's worth to their body instead of their entire being may be more susceptible to self-objectification (Moradi, 2010). This can lead to adverse outcomes such as shame, anxiety, and feelings of wanting to disappear—all congruent with precursors or symptoms of disordered eating, eating disorders, depression, and anxiety (Moradi, 2010). Research has found that women of color and white women report similar objectification, body surveillance, and body shame (Harrison & Fredrickson, 2003; Kozee et al., 2007; Moradi et al., 2005). Furthermore, objectification has also been correlated to depressive symptoms (Hurt et al., 2007; Miner-Rubino et al., 2002; Muehlenkamp & Saris-Baglama, 2002; Muehlenkamp et al., 2005; Tiggemann & Kuring, 2004). Miner-Rubino and colleagues (2002) found that self-objectification was correlated with signs of neuroticism, negative affect, and depressive symptoms in female college students. To study objectification stemming from viewing fitness images online, Prichard and colleagues (2017) found that state body satisfaction

decreased and negative mood increased over time following exposure to fitness images online, and that trait self-objectification significantly predicts state self-objectification.

Social Comparison Theory

Another theoretical explanation for the development of disordered eating, anxiety, and depressive symptoms stemming from online body critique may be attributed to the social comparison theory, which suggests that people are driven to measure their accomplishments in any given circumstances against somebody else (Festinger, 1954). This was later expounded on by being categorized in two ways: upwards social comparison, where one compares themselves against somebody that they perceive as doing better than them, and downwards social comparison, which is when one compares themselves against somebody they perceive as doing worse than them (Wills, 1981). Social comparisons have further been defined as “cognitive processes that can contribute to changes in affect depending on how individuals perceive their targets as well as themselves” (McCarthy & Morina, 2019, pp. 641). In terms of physicality, these comparisons are mostly made upward of somebody an individual views as more physically attractive than themselves (Pinkasavage et al., 2014). Recent studies have found ties among social comparison, lower self-esteem, and higher depression levels in those who browsed Facebook (Alfasi, 2019). In addition, a correlation among social comparison in bullying victims and clinical anxiety disorders (Lopes, 2013) and upwards social comparison with disordered eating behaviors (Fitzsimmons-Craft, 2017) has been found.

Female College-Students, Disordered Eating, Depression, and Anxiety

It has been well established that college students are susceptible to psychological issues such as mood disorders and anxiety (Auerbach et al., 2016; Center for Collegiate Mental Health, 2015; Eisenberg et al., 2011; Pedrelli et al., 2015; Prince, 2015; Kessler et al., 2005; Leviness et

al., 2019; Storrie et al., 2010). This could be due to a variety of reasons, including a change in the environment during the ages of 18-24, where students are wrestling with the newfound autonomy that college presents, an increase in demand for schoolwork, financial difficulties, and new, different social spheres. One in three college students meet the criteria for a diagnosable mental health disorder (Eisenberg et al., 2013). Furthermore, research estimates that 26% of Americans 18 and older live with a diagnosable psychological disorder (Kessler et al., 2005), with anxiety and depression being the two most common concerns in the college population, impacting 38-55% of students in the United States (Center for Collegiate Mental Health, 2015; Kessler et al., 2005; Leviness et al., 2019). Furthermore, in addition to anxiety and depression, 17% of college students struggle with eating disorders (Eisenberg et al., 2011).

Disordered eating behaviors and eating disorders are well established in women between 18-24. While already frequent, the prevalence of eating disorders in the college population has only risen in recent years. Eisenberg and colleagues found that 13.5% of females in their sample size of 2,822 college students screened positive for some form of eating disorder (Eisenberg et al., 2011). Furthermore, a 2009 study established that 49% of college women engage in disordered eating behavior every week (Berg et al., 2009). Research has also found that the mortality rates of females between the ages of 15 and 24 who suffer from anorexia are twelve times higher than other causes of death (South Carolina Department of Mental Health). Additionally, like other psychological disorders, eating disorders usually happen between the ages of 15 and 20, which partially falls into the college-aged category (Striegel-Moore et al., 2007).

Like disordered eating, depression is also a prevalent struggle in the college-aged population. The association between depression and disordered eating has been explored

extensively. Multiple studies confirm that body dissatisfaction (i.e., one of the preceptors for eating disorders) and disordered eating behaviors are connected to depressive moods (Van den Berg et al., 2002; Lenzo et al., 2020; Singleton et al., 2019; Son, 2008). In addition, depression and anxiety were positively correlated with the risk of developing an eating disorder (Lenzo et al., 2020). Son (2008) established that college-aged women with disordered eating behaviors also display signs of low self-concept, depression, and anxiety. Furthermore, Berg (2002) found that those with disordered eating behaviors reported lower self-esteem and higher depressive and anxiety symptoms than their peers who did not display disordered eating behavior. More recently, research has determined that depression was a mediator between binge-eating disorder, a subcategory of clinical eating disorders, and health-related quality of life (Singleton et al., 2019). These findings corroborate the DSM-5's conclusion that depression and eating disorders are comorbid with each other.

Anxiety, another struggle for the college-aged population, is comorbid to eating disorders (American Psychological Association, 2013, pp.333, 338, 344, 349, 353). In 2007, Hudson and colleagues found that more than half of individuals who have struggled with a clinically diagnosed eating disorder in their lifetime also report an anxiety disorder. In the study, 47.5% of those with anorexia nervosa, 80.6% with bulimia nervosa, and 65.1% with binge-eating disorders reported a diagnosable anxiety disorder (Hudson, 2007). Furthermore, participants being treated for eating disorders often report that an anxiety disorder preceded the onset of their eating disorder and continued even after the eating disorder was treated (Kaye et al., 2004; Raney et al., 2008).

Body Dissatisfaction, Body Image Perceptions, and Weight-Teasing

Body image perception can be defined as how individuals recognize their bodies cognitively, emotionally, and behaviorally (Tiggemann, 2004). While sometimes stagnant, perception can change over time and is continuously influenced by cultural and social norms (Levine & Murnen, 2009). Body image perceptions can be both negative and positive, with positive perceptions linked to healthy behaviors and negative perceptions linked to maladaptive behaviors and attitudes, which can lead to dangerous behaviors such as disordered eating patterns and clinically diagnosable eating disorders. Furthermore, body image perception can be broken down into positive body image perception and negative body image perception. *Positive body image perception* is defined as a person's acceptance and appreciation of [their] body, its uniqueness, and its functionality (Tylka & Wood-Barcalow, 2015). In comparison, *negative body image perceptions* can be defined as when a person cannot see themselves accurately and perceives their body image as distorted (Bucchianeri et al., 2013). Negative body image perception is often called body dissatisfaction (Bucchianeri et al., 2013).

Body dissatisfaction, defined as the "mismatch between an individual's image of his or her own body, particularly body shape and weight and body perceived as ideal" (Kong & Harris, 2014, p. 142), is often viewed as a significant precursor to clinical eating disorders and disordered eating behavior (Post & Crowther, 1985). Body dissatisfaction has been correlated to the longing to be thin (Hargreaves & Tiggemann, 2003), disordered eating and dangerous dieting behaviors (Stice et al., 2011), and the development of clinical eating disorders (Goldschmidt et al., 2012). Research has found that college women have evidence of high levels of body dissatisfaction (Bucchianeri et al., 2013). In data derived from a ten-year longitudinal study, Bucchianeri and colleagues (2013) found that body dissatisfaction increased as the participants aged, peaking around early young adulthood and young adulthood (younger group

$b(SE)=3.79(0.62)$, $p<.001$), older group $b(SE)=2.20(0.39)$, $p<.001$). Often body dissatisfaction happens because of the perceived inability to meet society's standard for body image, otherwise known as the "*thin ideal*." Stice (1994) theorized that the thin ideal internalization is central to understanding body dissatisfaction as the thin ideal happens when women think that they must be thin to be attractive and use this thought as one of their guiding life principles (as cited in Thompson et al., 2004). Body dissatisfaction and the internalization of the thin ideal can arise from many different sources, including media, social influence, biological factors, and hormonal issues, among many others (Bourke-Taylor et al., 2019; Howard et al., 2017; Plateau et al., 2018; Rodgers et al., 2009; Stice, 1994; Wood et al., 2010). Furthermore, the drive for thinness, otherwise known as the *internalization of the thin ideal*, has been linked to weight-related commentary or weight-teasing from peers, family, and social commentary (Thompson et al., 1999).

Weight-Teasing

Research has repeatedly linked weight-teasing to body dissatisfaction, disordered eating behaviors, internalization of the thin ideal, and depression (Lieberman et al., 2001; Thompson et al., 1999). As many as 40% of adults in the United States have been victims of weight teasing and discrimination due to their weight (Himmelstein et al., 2017), and 72% of college-aged women were teased about their weight in childhood through adolescence (Cash, 1995). Previous research has effectively studied the links between weight-based teasing or critical comments made about weight on the psyche and has found an overwhelming psychological impact (Ausmus et al., 2021; Biesecker & Martz, 1999; Fransico et al., 2012; Kerr et al., 2006; Muscat & Long, 2008). In athletics, critical comments made by a coach about an athlete's body have been linked to social physique anxiety, disordered eating behaviors, and feelings of guilt,

anxiety, and shame (Biesecker & Martz, 1999; Kerr et al., 2006; Muscat & Long, 2008). In addition, critical comments made by trusted support systems, such as an athlete's family or peers, could lead to the development of disordered eating behaviors (Fransico et al., 2012). Recent studies have found that the severity of a critical comment about appearance and the emotional reaction to it strongly correlated to disordered eating behavior (Ausmus et al., 2021). These findings are consistent with findings established in the non-athletic population. Comments stemming from family about appearance is a common source of weight teasing (Puhl & King, 2013). Evidence shows that a family's negative comments about body appearance can lead to the onset of binge-eating and purging in those who already live with bulimia (Palmer, 1998; Stice, 1998). Furthermore, research has established that weight teasing by parents is linked to disordered eating behaviors (Baker et al., 2000; Smolak et al., 1999; Vincent & McCabe, 2000), and being encouraged to lose weight by parents is also associated with disordered eating behaviors (Benedikt et al., 1999; Keel et al., 1997; Kluck, 2010; Vincent & McCabe, 2000; Wertheim et al., 2002). Eisenberg and colleagues (2012) report that 35.8% of women receive weight-based comments from their families. In their 10-year longitudinal study, Eisenberg and colleagues found that hurtful weight-related comments resulted in higher instances of unhealthy weight control behaviors ($F = 27.4, p < .001$), extreme weight control behaviors ($F = 13.2, p < .00$), and binge eating ($F = 15.4, p < .001$) in women. Furthermore, these critical comments about their weight from family and peers can lead to disordered eating behaviors and poor body image in adulthood (Puhl et al., 2017). Five years after receiving a critical comment about their weight, around 11% of adolescent girls engage in disordered eating behaviors (Haines et al., 2006).

Additionally, much research regarding teasing has been done on adolescents, specifically in schools. Weight based teasing is especially prevalent in school settings, with one-fourth of

students reporting that they were teased about their weight (Neumark-Sztainer et al., 2002), with adolescent females reporting being the victim of weight teasing more than males (Goldfield et al., 2010; Neumark-Sztainer et al., 2002). Additionally, a 2011 study found that 84% of students observed their overweight peers being bullied due to their weight (Puhl, 2011). Furthermore, being overweight was considered the number one reason students were bullied in school settings, followed closely by sexual orientation (Puhl, 2011). Research suggests that weight is one of the main reasons children are being bullied today (Puhl et al., 2011; Bradshaw et al., 2013). While not the college-aged population, understanding how the roots of bullying can impact individuals well into adulthood is vital. Research has shown that the impacts of being subjected to bullying in adolescence can extend well into adulthood (Troop-Gordon, 2017), leading to lower self-esteem (Isaacs et al., 2008), an increase in anxiety (Wolke & Sapouna, 2008), and depression later in life (Due et al., 2009; Isaacs et al., 2008; Roberts et al., 2013; Wolke & Sapouna et al., 2008).

Furthermore, childhood bullying has also been shown to be more detrimental than if the individual was a victim of parent maltreatment or physical, emotional, or sexual abuse (Lereya et al., 2015). Moreover, children who were bullied at the age of ten were more likely to adopt an objectified view of their bodies consistent with the objectification theory eight years post-bullying and, by the age of 18, felt shame towards their bodies and underwent intense body monitoring (Lunde & Frisén, 2011). In addition, associations between weight-teasing in childhood and disordered eating behaviors in adulthood have been found (Puhl et al., 2017). In their 2017 study, Puhl and colleagues established in their 15-year longitudinal study that adolescents who were bullied for their weight and eating habits exhibited adverse eating and weight outcomes as they transitioned into their 30s. Those teased about their weight in childhood

exhibited disordered eating behaviors and body dissatisfaction in their adult lives (Puhl et al., 2017). Copeland and colleagues (2015) found that victims of bullying in childhood were at increased risk for anorexia and bulimia, and other disordered eating pathologies. A recent qualitative study found that in a survey of young adults (N=43) who had been bullied at home during their childhood, many participants stated that they had low self-esteem as a result in adulthood, and almost a quarter of the participants were bullied by a family member based on their weight (deLara, 2020). One participant reported having been clinically diagnosed with anorexia, another cited an eating disorder but did not specify her diagnosis, and another cited an eating disorder and high levels of depression (deLara, 2020).

Female-College Students, Disordered Eating, Depression, Anxiety, Body Image, and Media

The connection between disordered eating, depression, anxiety, and body image concerns stemming from media consumption has been well documented over the last 40 years. Previous research has discovered that traditional media such as magazines have an overwhelming impact on body image perceptions in adolescents (Harper & Tiggemann, 2008). Via fashion magazines, Harper and Tiggemann (2008) found that advertisements featuring thin ideal models correlated with high self-objectification, social physique anxiety, mood disorder symptoms, and body dissatisfaction. Furthermore, Grabe and Hyde (2009) established that exposure to music television (aka MTV) correlated with higher self-objectification and negative self-concept than those who watched less than once a week. In addition to studies on adolescents, media has also been correlated with negative body image, depression, and anxiety in the college-aged population (Becker et al., 2011; Cameron & Farroro, 2004; Meier & Gray, 2014; Ramsey & Horan, 2016; Stice & Bearman, 2001). In college-aged females, body dissatisfaction has been correlated with as little as 15 minutes of health and fitness magazine exposure (Cameron &

Farraro, 2004). Recently, research has shifted from extensively studying traditional media forms to studying the impact of social media sites on the psyche of individuals and has discovered a significant association between social media usage and disordered eating behaviors (Becker et al., 2011). Becker and colleagues found in their 2011 study that social media exposure was independently associated with more significant instances of eating pathology ($B = .15$, CI 0.04-0.27) in their sample of females between the ages of 15-20. Studies have shown that social media is one of the biggest influences on self-concept and that time spent utilizing social media correlated with self-concept (Stice & Bearman, 2001). In 2014, Meier and Gray found a positive correlation between photo interaction on Facebook and negative body image perceptions. In their study of 103 adolescent female students between the ages of 12-18, Meier and Gray (2014) found that Facebook exposure was positively correlated with the internalization of the thin ideal ($r = 0.358$, $p < .005$), self-objectification ($r = 0.286$, $p < .01$), and drive for thinness ($r = 0.271$, $p < .01$). Furthermore, Meier and Gray (2014) found that Facebook exposure was negatively correlated with weight satisfaction ($r = -0.227$, $p < .05$). Interestingly, research has also discovered that a reward system is one of the best explanations for the psychological impact of social media sites (Ramsey & Horan, 2018). For example, when users post on social media platforms but do not receive likes, encouraging comments, shares, etc. (i.e., 'rewards'), their self-esteem is likely to be decreased (Ramsey & Horan, 2018). Moreover, when users do not receive these rewards, the impact of not receiving that reward may extend to the world beyond social media, where many users may think that people have a low opinion of them in real life as well as on social media (Meir & Gray, 2014). In summary, research has found that other users' opinions are significant to posters on social media sites and can determine self-concept (Vogel et al.,

2014), which can lead to disordered eating behaviors, depression, and anxiety symptoms (Parent & Bradstreet, 2017).

Cyber-bullying

While it has been established that bullying and weight teasing can correlate with the development of psychological issues, it is also important to review cyberbullying and its impact, especially on the college-aged population. *Cyberbullying* is defined as “sending or posting harmful material or engaging in other forms of social aggression using the internet and other digital technologies” (Willard, 2007, pp. 1). Willard broke down cyberbullying into eight different types or categories. These include: 1) flaming, which is a heated, short argument that often happens on forums or online gaming; 2) harassment, which is repeated sending of offensive messaging; denigration, defined as harmful, untrue, or cruel speech; 3) impersonation, defined as pretending to be somebody else online to reflect poorly on the impersonated; 4) outing/trickery, which is publicly posting personal communication or images that were understood to be private; 5) exclusion, defined as defining in-groups and outcasts; cyberstalking, which is sending repeated harmful messages; and finally 6) cyberthreats, defined as threatening somebody online (Willard, 2007). One of the defining features of cyberbullying is that, unlike ‘regular’ bullying, cyberbullying is not contained and is a phenomenon that can take place at any hour online without intermission. Moreover, cyberbullying victims have reported experiences similar to ‘regular’ bullying, such as emotional distress, poor body self-esteem, weight issues, depression, suicidal ideation, anxiety, and isolation (Frisen et al., 2014; Hinduja & Patchin, 2010; Kaminski & Fang, 2009; Patchin & Hinduja, 2006; Schenk & Fremouw, 2012; Ybarra et al., 2012). Like ‘regular’ bullying, cyberbullying has been extensively studied in the school-age

population, but recent research has attempted to understand college students' experiences with cyberbullying.

In a 2010 study, 22% of college-aged women reported being a victim of cyberbullying, with 7.6% reporting cyberbullying somebody else (Macdonald & Pittman, 2010). Furthermore, the same study found that 25% of college students reported being cyberbullied via social media, with 6.8% having somebody post negative information or images of them online (Macdonald & Pittman, 2010). Some research suggests that if cyberbullied in high school, the chances are higher that victims will continue to experience cyberbullying in college and university settings (Kraft & Wang, 2010). Researchers speculate that this is because social roles are maintained from high school into college—so a bully may remain a bully, and the bullied will continue to experience harassment (Chapell et al., 2006). Furthermore, research has determined that college students who had been victims of cyberbullying were almost three times more likely to meet the criteria for clinical depression (Selkie et al., 2015). In addition to depression, college-aged cyberbullying victims displayed significant rates of anxiety and paranoia than their peers who had not experienced cyberbullying (Schenk & Fremouw, 2012).

Conclusion

Because women between the ages of 18-24 are a vulnerable population, it is crucial to study how interactions on social media impact them psychologically. College women are already psychologically susceptible to being in the age bracket for the onset of many psychiatric issues, including being at heightened risk for instances of depression, anxiety, disordered eating, and eating disorders. While some studies have been completed looking into the role of body image critiques and their impact on women, it is important to understand how these critical comments

on social media impact college females, especially since the increased usage of social media in recent years in this specific population.

Purpose of the Study

As explained by the social comparison and the objectification theory, outsiders' views on an individual's body can significantly influence their perceptions of their body image.

Furthermore, studies have shown that criticism received about one's body can result in disordered eating behaviors and comorbid symptoms such as anxiety and depression (Eisenberg et al., 2011; Dion et al., 1990). Thus, with the impact of social media on everyday life, it is important to understand the effects of criticism received on social media about one's body in depressive, anxiety, and disordered eating symptoms. Therefore, this study aims to explore the interaction among criticism viewed on social media to disordered eating behaviors, anxiety, and depression symptoms.

Research Questions

The following research questions were explored:

1. What is the relationship between social media usage and disordered eating behavior in females in college between the ages of 18-24 years?
2. What is the relationship between social media usage and depressive symptoms in females in college between the ages of 18-24 years?
3. What is the relationship between social media usage and anxiety symptoms in females in college between the ages of 18-24 years?
4. Does receiving negative body image criticism as part of social media use impact depression, anxiety, and disordered eating symptoms?

5. Are there relationships among reactions to general criticism (i.e., emotional reaction and severity) received on social media about physical appearance and disordered eating behavior, depression symptoms, and anxiety symptoms in females in college between the ages of 18-24 years?
6. Are there relationships among years in school (i.e., first-year, second-year, third-year, fourth-year, fifth-year/post-graduate student) and social media usage, anxiety, depression, and disordered eating symptoms in females in college-between the ages of 18-24 years?

Significance of the Study

While research is progressive and starting to acclimate to social media, few studies have examined body image perceptions from multiple different social media outlets—most studies focus solely on one platform, such as Facebook or Instagram. Fewer studies have looked at the interaction among criticism received on social media and disordered eating behaviors, depression, and anxiety. The information gained from this study may aid mental health and general health providers in assessing better and understanding how social media impacts depression, anxiety, and disordered eating behavior in college women. Furthermore, insights gained from this study may be a building block in education for safer social media use.

CHAPTER TWO

Method

This chapter aims to describe the methodological approach and design in this study, including research questions, participants, instruments, procedures, and design and analysis. Using a quantitative, cross-sectional survey design, this study aimed to examine the impact of criticism viewed on social media on disordered eating behaviors, anxiety, and depression in female college students (18-24 years). The researcher used the objectification theory (Fredrickson & Roberts, 1997) and social comparison theory (Festinger, 1954) as the theoretical framework to execute this study.

Research Questions

1. What is the relationship between social media usage and disordered eating behavior in females in college between the ages of 18-24 years?
2. What is the relationship between social media usage and depressive symptoms in females in college between the ages of 18-24 years?
3. What is the relationship between social media usage and anxiety symptoms in females in college between the ages of 18-24 years?
4. Does receiving negative body image criticism as part of social media use impact depression, anxiety, and disordered eating symptoms?
5. Are there relationships among reaction to general criticism (i.e., emotional reaction and severity) received on social media about physical appearance and disordered eating behavior, depression symptoms, and anxiety symptoms in females in college between the ages of 18-24 years?

6. Are there relationships among years in school (i.e., first-year, second-year, third-year, fourth-year, fifth-year/post-graduate student) and social media usage, anxiety, depression, or disordered eating symptoms in females in college between the ages of 18-24 years?

Participants

Participants were 236 women between 18-24 years old ($M=20.47$) who are currently enrolled at any university or college in the United States. An a priori power analysis was conducted using G*Power3 (Faul et al., 2007) to determine whether at least 180 participants were needed. Recruitment was accomplished via email, word-of-mouth, social media, flyers on Auburn University's campus, undergraduate courses, and the university's undergraduate SONA research study database. The average total time commitment for the participants to complete the survey was 30 minutes.

Instruments

The participants were asked to complete a descriptive questionnaire, a modified version of the Social Hassles Questionnaire (Muscat & Long, 2008), the Eating Disorder Evaluation-Questionnaire (Fairburn & Beglin, 1994), the Patient Health Questionnaire-9 (Spitzer et al., 1999), and the Generalized Anxiety Disorder Scale-7 (Spitzer et al., 2006).

Descriptive Questionnaire

The researcher developed twenty-two items to explore basic demographical information about the participant, including age and year in school. Additionally, questions about what the participants perceive as their ideal body image, their current body image, and social media engagement, such as whether they allow strangers to follow them on social media and whether they have ever been victims of offensive and harsh comments on social media were asked. Two items were developed by Sidani and colleagues (2015) that asked the participants to estimate

how often they used social media in 24 hours and how often they visited social media websites. Sidani and colleagues' scale was slightly modified, with Google+, a now-defunct social media site, replaced by Tik-Tok, which has seen exponential growth in the generation z population during the last three years (Geysler, 2021).

Modified Social Hassles Questionnaire

The Social Hassles Questionnaire (SHQ; Muscat & Long, 2008) was initially developed to measure the impact of critical comments from friends, parents, teachers, coaches, or significant others on female athletes. This instrument has three subscales that examine the frequency of critical comments, the emotional response to the comments, and the severity of the comments. For this study, the Social Hassles Questionnaire was modified with adjustments made to recognize how the participants reacted to critical comments made **on social media** about their bodies or looks. There are 12 items in total, with 6 Likert-scale questions ranging from 1 (not at all affected) to 4 (very affected), and 6 Likert-scale items examining the emotions felt around the comment or how well they remembered the comment. Examples of these items include, “to what degree do you feel the comment made **on social media** by this person about your body has had an impact on how conscious you are about your body shape, diet, or need to change your weight?” and “to what degree did you feel the comment made **on social media** by this person about your body has resulted in you attempting to make changes to your body?” In addition, participants were asked whether they were told to lose weight or change their diet, how often they have been victims of critical comments, and how long ago those comments occurred. The sum of the Likert Scale items indicates how much the critical comment impacted the participant, with lower scores indicating less impact and higher scores indicating a severe impact. Internal

consistency was .65 for negative emotions and .83 for positive emotions. Cronbach's alpha for the severity of critical comment items was .78 (Muscat & Long, 2008).

Eating Disorder Evaluation-Questionnaire (EDE-Q)

The Eating Disorder Evaluation-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) assessed disordered eating behaviors and attitudes. The EDE-Q consists of 28 items on four different subscales. These subscales measure restraint, eating concern, shape concern, and weight concern over 28 days. To calculate the scores, ratings from each subscale are averaged by the total number of items on the individual subscale. The higher the score, the greater the symptomatology. To achieve a 'global' score, the four subscales are averaged, with the higher the score, the greater the symptomatology. In addition to being validated against structured clinical interviews (Fairburn & Wilson, 1994), the EDE-Q has exceptional internal consistency (.81) and 2-week test-retest reliability for the five subscales (.94) (Luce & Crowther, 1999; Mond et al., 2004).

The EDE-Q has been normed for college students (Luce et al., 2008; Quick & Byrd-Bredbenner, 2013). In their study of 723 undergraduate women, Luce and colleagues (2008) found that when compared via independent t-tests to Mond and colleagues (2006) sample of adult women between the ages of 18 and 22 years, there were significant differences on the global (i.e., overall scale) ($t(1,907) = 2.44, p < .05$), restraint subscale ($t(1,907) = 4.67, p < .001$), and eating concern subscale ($t(1,907) = 4.54, p < .001$). In their study of 2,488 undergraduate students between the ages of 18-26, 63% of which were female, Quick and Byrd-Bredbenner (2013) found that mean scale scores for the EDE-Q global (i.e. the entire scale) and four subscale scores were all significantly ($p < .001$) higher in women than men. This was found via independent samples t tests (global EDE-Q $t = -15.1, df = 2,312$; restraint $t = -6.9, df =$

2,096; eating concern $t = - 13.3$, $df = 2,431$; shape concern $t = - 16.7$, $df = 2,192$; weight concern $t = - 16.1$, $df = 2,335$).

Patient Health Questionnaire-9 (PHQ-9)

The Patient Health Questionnaire-9 (PHQ; Spitzer et al., 1999) is a self-report scale that measures depression symptoms. The scale consists of nine items measuring depression symptoms over two weeks. The scale asks, “over the last two weeks, how often have you been bothered by the following symptoms?” with symptoms listed such as “little interested or pleasure doing things,” “feeling down, depressed, or hopeless,” and “trouble falling or staying asleep, or sleeping too much” answered on a Likert Scale with 0 being “not at all” to 3 “nearly every day.” The scores of each item are added together to create a total with, the higher the total score equaling a greater chance of a clinical depression diagnosis. The lowest score possible is 0, and the highest score possible is 27, indicating severe depression symptoms. The internal reliability of the PHQ-9 is acceptable to very good, ranging from .73 to .89 (Kroenke et al., 2001). A PHQ-9 score greater than or equal to 10 had both sensitivity and specificity of 88% for major depression.

Although the PHQ-9 has been used to examine depression symptoms in college students (Eisenberg et al., 2007; Ellis & Trumpwer, 2008), few have examined the validity of the PHQ-9 in college students (Adewuya et al., 2006; Granillo, 2012). Adewuya found that the PHQ-9 had good concurrent validity with the Beck’s Depression Inventory ($r = 0.67$, $p < 0.001$) and good one month test-retest reliability ($r = .984$, $p < .001$) in their representative sample of 512 university students. In their sample of 16,754 Latina and non-Latina white college females between the ages of 18-22, Granillo (2012) found that Latina college women scored higher on all PHQ-9 items than their non-Latina white peers (Whites: $M = 6.35$, $SD = 4.93$; Latinas $M = 7.25$,

$SD = 5.48$). In addition, Granillo also found via exploratory two-factor analysis that both factors have good internal consistency ($\alpha = 0.77$) and were correlated with meeting DSM-IV diagnostic criteria for depression (Affect: $r = 0.72$; $p < .0001$, Somatic: $r = 0.51$; $p < .0001$).

Generalized Anxiety Disorder Scale-7 (GAD-7)

The Generalized Anxiety Disorder Scale-7 (GAD-7; Spitzer et al., 2006) is a self-report scale measuring anxiety symptoms. The scale consists of seven items measuring anxiety symptoms over two weeks. The scale asks over the last two weeks, how often have you been bothered by the following symptoms?" with symptoms listed such as "feeling nervous, anxious, or on edge," "not being able to stop or control worrying," and "worrying too much about different things" answered on a Likert Scale with 0 being "not at all" to 3 "nearly every day." The GAD-7 scores are like the PHQ-9. The items added together to create a total with the higher the scores, the greater the chances of having a clinical, diagnosable anxiety disorder. The lowest score possible is 0, and the highest score possible is 21, indicating severe anxiety symptoms. The internal reliability of the GAD-7 ranges from very good to excellent, at .83 to .92, respectively (Spitzer et al., 2006).

In their study of 4,128 college students between 18-26, Byrd-Bredbenner and colleagues (2021) found that exploratory principal components analysis yielded a one-factor solution for the GAD-7 in men and women. Independent two-tailed t-tests revealed that females scored significantly higher than males on the GAD-7 (Byrd-Bredbenner et al., 2021). Via a cross-sectional study of college students ($n = 1,031$) in Portugal, 32.8% of participants reported significant anxiety symptoms (Monteiro et al., 2020). Additionally, Monteiro and colleagues (2020) established that the GAD-7 has good internal consistency (cognitive-emotional: $\alpha = 0.85$;

somatic items: $\alpha = 0.86$) and is an adequate scale to observe anxiety symptoms in college students.

Procedures

Before data collection, approval was obtained from the University Institutional Review Board (Appendix F). Upon approval, a request for participation was distributed via email, word-of-mouth, flyers, social media, and the university SONA system. The SONA system is a research management tool that connects undergraduates with faculty and graduate students seeking participants for their research study. With this participation request, researchers included the link to a Qualtrics-based survey. The link included an information letter and components of the survey, including demographics, the modified Social Hassles Questionnaire, the EDE-Q, the PHQ-9, and the GAD-7. The participants were informed that the information they provide is completely anonymous via the information letter. In addition, the participants were informed via the information letter that once they completed the survey, they could proceed to a separate survey to be entered to win one of 20 \$25 Amazon gift cards. On average, the survey took 30 minutes to complete.

Design and Analysis

This study explored the intersecting relationships among social media usage, criticism, disordered eating behaviors, depressive symptoms, and anxiety symptoms in female college students between aged 18-24. This study utilized a quantitative correlational design with a cross-sectional survey methodology. Data was collected via a self-report survey via Qualtrics. Descriptive statistics were analyzed to explore the demographics and social media usage patterns. To test research question 1, Pearson's correlations were conducted to analyze the relationship between the demographic information (i.e., demographic questions about social

media usage) and the EDE-Q subscales. To test research question 2, Pearson's' correlations were conducted to analyze the relationship between demographic information and the PHQ-9 total score for each participant.

Similarly, to research questions 1 and 2, to test research question 3, Pearson's' correlations were conducted to understand the interaction between anxiety symptoms found on the GAD-7 and social media usage found in the demographic questionnaire. Finally, to test research question 4, Pearson's' correlations were conducted to understand the interaction between participants' subscale scores from the modified Social Hassles Questionnaire with the EDE-Q, PHQ-9, and the GAD-7. Again, alpha levels were set at .05. To test research question 5, multiple regression analyses were run to predict any relationship among reactions to critical comments via the modified version of the Social Hassles Scale, social media usage, emotional reaction to critical comments, the severity of critical comments, body satisfaction, disordered eating behaviors, depressive symptoms, and anxiety symptoms. Finally, to test research question six, an ANOVA to test group differences and multiple regression analyses were run to predict any relationship among the year in school/age and depression, anxiety, disordered eating symptoms, and social media usage.

CHAPTER THREE

Results

This study explored the interaction among criticism viewed on social media to disordered eating behaviors, anxiety, and depression symptoms. The following chapter outlines the results of this study. The data were screened and cleaned for violations of assumptions before the analysis was run. Missing cases were removed prior to analysis. At the onset, descriptive statistics and frequencies were run to determine the basic demographics of the participants, including age, year in school, and social media usage. Means, standard deviations, and ranges were conducted for variables of interest. Descriptive statistics, Pearson's correlations, analysis of variance (ANOVA), and multiple regression analyses were employed. Findings are organized below by demographics and then by individual research questions.

Demographics

The participants for this study comprised 236 females between 18-24 ($M=20.46$). Twenty-one percent of the participants were freshmen ($N=50$), 19.5% were sophomores ($N=19.5$), 26.7% were juniors ($N=63$), 22.5% were seniors ($N=53$), and 10.2% reported being "other" such as a graduate student or medical student ($N=24$). Most participants ($N=204$; 86%) reported having received criticism from important people in their life about their weight or physical appearance off social media. Results indicated that 97.5% of the participants engaged in social media usage ($N=230$). Sixty-nine percent of participants reported posting photos or "selfies" to social media outlets ($N=165$), with 47.9% of those participants reporting using photo-editing apps such as facetune and filters to enhance their appearance ($N=113$). Thirty-eight percent of participants reported allowing strangers to access their social media ($N=131$). In addition, 32.6% reported being victims of harsh and offensive comments on social media

(N=77), with 18.6% reporting cyberbullying (N=44). Table 1 details the social media usage for each social media site included in the demographics questionnaire. Table 2 details how often the participants posted on each social media outlet. Results indicated that all participants' average time spent on social media was 4.26 hours per day (SD=2.579), with TikTok and Snapchat being the most utilized. The usage for each social media outlet was scaled on a Likert scale ranging from 1 (I don't use this platform at all) to 7 (5 or more times per day).

Table 1

Means and standard deviations of times each social media outlet used.

Outlet	M	SD
Facebook	1.96	.721
Twitter	1.58	.797
Tik Tok	2.81	1.12
YouTube	2.17	.923
Instagram	2.75	.774
Pinterest	1.79	.710
Tumblr	1.14	.470
Snapchat	2.73	1.09
Reddit	1.32	.633
Other	1.10	.436

Note: Likert Scale options: 1 (I don't use this platform at all), 2 (Less than once a week), 3 (1-2 days a week), 4 (3-6 days a week), 5 (about once a day), 6 (2-4 times a day), 7 (5 or more times a day).

Table 2

Means and standard deviations of times each social media outlet is posted to.

Outlet	M	SD
Facebook	1.18	.817
Twitter	1.52	.932
Tik Tok	1.89	.843
YouTube	1.54	.664
Instagram	2.20	.736

Pinterest	1.59	.784
Tumblr	1.16	.477
Snapchat	3.33	1.77
Reddit	1.20	.492
Other	1.16	.714

Note: Likert Scale options: 1 (I don't use this platform at all), 2 (Less than once a week), 3 (1-2 days a week), 4 (3-6 days a week), 5 (about once a day), 6 (2-4 times a day), 7 (5 or more times a day).

Analysis

To analyze research questions question one, two, three, and four, Pearson's correlations were conducted to test the relationships between demographic results and disordered eating, depression, anxiety, and critical comment response. All Pearson's correlations were conducted with an alpha of .05. Multiple regression analysis was conducted to analyze research question 5 to predict relationships among reactions to critical comments on social media, social media usage, emotional reaction to critical comments, the severity of the critical comments, disordered eating, depressive, and anxiety symptoms. To analyze research question six, an analysis of variance (ANOVA) was conducted to test group differences between years in school (i.e., first-year, second-year, third-year, fourth-year, fifth-year/post-graduate) by social media usage and social media commentary impact.

Research question one, the relationships between social media usage and disordered eating in participants of this study, was examined using Pearson's bivariate correlations. Results indicated a significant positive correlation between average time spent on all social media outlets and disordered eating ($r = .152, p < .05$). Further, Pearson's bivariate correlation results indicated that time spent on TikTok correlated with overall disordered eating ($r = .208, p < .05$).

Research question two, the relationship between social media usage and depression in participants of this study, was analyzed via Pearson's bivariate correlations. Results

demonstrated that overall time spent on social media correlated with depressive symptoms ($r = .225, p < .01$). When hours per day spent on individual social media outlets, there was a positive correlation among depressive symptoms and TikTok ($r = .201, p < .05$), YouTube ($r = .183, p < .05$), Pinterest ($r = .160, p < .05$), Snapchat ($r = .183, p < .05$), and Reddit ($r = .186, p < .05$).

Research question three, relationship between social media usage and anxiety symptoms in the study sample, was examined using Pearson’s bivariate correlations. Results revealed that average time spent on social media correlated with anxiety symptoms ($r = .149, p < .05$). An additional Pearson’s correlation indicated that a significant correlation among anxiety symptoms and TikTok ($r = .150, p < .05$) and Pinterest ($r = .177, p < .05$) was present. Results also indicated a positive correlation between anxiety and depressive symptoms ($r = .764, p < .001$).

Depression and anxiety also correlated with all subscales of the EDE-Q (Table 3).

Table 3
Pearson Correlation for Depression, Anxiety, and EDE-Q subscales

	Restraint	Eating Concern	Shape Concern	Weight Concern	Global
Depression	.478**	.565**	.553**	.477**	.582**
Anxiety	.440**	.520**	.475**	.423**	.523**

** $p < 0.01$

Research question four, receipt of negative body image criticism as part of social media use impact depression, anxiety, and disordered eating symptoms, was analyzed via Pearson’s bivariate correlations. Results indicated that participants who posted photos or selfies on social media were more often victims of offensive/harsh comments ($r = .273, p < .001$). Furthermore, those who face-tuned their appearance or used filters were also more likely to have been victims of harsh/offensive comments on social media ($r = .14, p < .05$). Results also demonstrated that those who allowed strangers to follow them on social media were more likely to have been

victims of harsh/offensive comments on social media ($r = .225, p < .001$), and there was a positive correlation between those who allowed strangers to follow them on social media and those who considered themselves a victim of cyberbullying ($r = .610, p < .001$). Results indicated a negative correlation between receiving harsh/offensive comments on social media and disordered eating ($r = -.236, p < .01$). Results also demonstrated a negative correlation among receiving harsh/offensive comments on social media and anxiety ($r = -.194, p < .01$), and depressive symptoms ($r = -.204, p < .01$). There was a significant positive correlation among severity of the critical comment received on social media and disordered eating ($r = .572, p < .001$), anxiety ($r = .354, p = .001$), and depression ($r = .375, p < .001$). Results indicated a significant positive correlation between the frequency of critical comments and disordered eating ($r = .287, p < .05$). Furthermore, correlations were found among emotional reaction to the critical comments and disordered eating ($r = .364, p < .001$), anxiety ($r = .276, p < .05$), and depression ($r = .227, p = .05$).

Research question five examined relationships between general criticism received on social media and disordered eating behavior, depression, and anxiety symptoms in this sample. The multiple regression model with all six predictors was statistically significant, $R^2 = .157, F(6, 81) = 2.334, p < .05$ (Table 4).

Table 4
Regression Analysis for Social Hassles Questionnaire Frequency of Critical Comments Subscale

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Restraint Subscale	-.124	-.057	-.339	.735	[-.852, .604]
EDEQ Eating Concern Subscale	-.585	-.244	-1.279	.205	[-1.496, .326]
EDEQ Shape Concern Subscale	1.645	.595	2.538	.013	[.354, 2.937]
EDEQ Weight Concern Subscale	.047	.016	.086	.932	[-1.05, 1.14]

PHQ Total	-.056	-.093	-.550	.584	[-.257, .146]
GAD Total	.057	.092	.566	.573	[-.145, .260]

Dependent variable: Social Hassles Questionnaire Frequency of Critical Comments Subscale

An additional multiple regression analysis was employed to examine relationships among disordered eating behavior, anxiety, depression symptoms, and the severity of critical comments received on social media (Table 5). The multiple regression model with all six predictors was statistically significant, $R^2 = .371$, $F(6, 81) = 7.386$, $p < .001$.

Table 5

Regression Analysis for dependent variable Social Hassles Questionnaire Severity of Critical Comments Subscale

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Restraint Subscale	.104	.075	.515	.608	[-.299, .507]
EDEQ Eating Concern Subscale	-.010	-.006	-.038	.970	[-.514, .495]
EDEQ Shape Concern Subscale	.645	.364	1.797	.076	[-.070, 1.36]
EDEQ Weight Concern Subscale	.274	.147	.900	.371	[-.332, .880]
PHQ Total	.010	.026	.179	.858	[-.101, .121]
GAD Total	.038	.096	.682	.497	[-.074, .150]

Dependent variable: Social Hassles Questionnaire Frequency of Severity of Critical Comments Subscale

A third multiple regression analysis was employed to predict relationships between disordered eating behavior, anxiety, depression symptoms, and the emotional reaction to critical comments received on social media (Table 6). The multiple regression model with all 6 predictors was statistically significant, $R^2 = .198$, $F(6, 81) = 3.080$, $p < .05$.

Table 6

Regression Analysis for dependent variable Social Hassles Questionnaire Emotional Reaction to Critical Comments Subscale

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Restraint Subscale	.320	.072	.436	.664	[-1.14, 1.78]

EDEQ Eating Concern Subscale	.519	.105	.565	.574	[-1.31, 2.35]
EDEQ Shape Concern Subscale	2.537	.446	1.949	.055	[-.056, 5.13]
EDEQ Weight Concern Subscale	-1.440	-.240	-1.304	.196	[-3.64, .760]
PHQ Total	-.169	-.138	-.834	.407	[-.573, .235]
GAD Total	.222	.173	1.087	.280	[-.185, .628]

Dependent variable: Social Hassles Questionnaire Emotional Reaction to Critical Comments Subscale

A final multiple regression analysis was done to determine the interaction among the total social hassles questionnaire results (i.e., how much critical comments received on social media impacted the participant) and depression, anxiety, disordered eating, overall social media usage, and TikTok, Instagram, and Snapchat usage (Table 7). The multiple regression model with all seven predictors was statistically significant, $R^2 = .318$, $F(7, 80) = 4.861$, $p < .001$.

Table 7
Regression Analysis for dependent variable Social Hassles Questionnaire Total Score

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Total	3.463	.440	3.714	<.001	[1.61, 5.32]
PHQ Total	-.217	-.131	-.836	.406	[-.733, .300]
GAD Total	.376	.215	1.479	.143	[-.131, .883]
Instagram	.085	.007	.055	.956	[-2.99, 3.16]
TikTok	2.499	.254	1.812	.074	[-2.49, 5.25]
Snapchat	-.164	-.018	-.156	.876	[-2.27, 1.94]
Total Time Spent on Social Media	-.951	-.261	-1.885	.063	[-1.96, .055]

Dependent variable: Social Hassles Questionnaire Total Score

Finally, in research question six, the relationships among the year in school and social media usage, anxiety, depression, and disordered eating in females in college between the ages of 18-24 were analyzed via an analysis of variance (ANOVA) to test group differences among year in school by social media usage, and social media criticism impact (Table 8). Results indicated that sophomores spent the most time on social media overall ($M=5.36$, $SD=3.945$), while sophomores were interacting on social media more than their peers, juniors were more

impacted by critical comments than any other groups in the sample ($M=57.88$, $SD= 10.51$). There was also a significant effect for the year in school (I.e., first-year student, second-year student, third-year student, fourth-year student) on time spent on social media at the $p<.05$ level for the five conditions, $F(4, 220) = 4.392$, $p < .05$. Additionally, there was no significant effect for the year in school on social media criticism impact at the $p<.05$ level for the five conditions, $F(4, 86)=.509$, $p>.05$.

Table 8
Summary of ANOVA

		Sum of Squares	df	Mean Square	F
Social Media Total	Between Groups	110.014	4	27.504	4.392*
	Within Groups	1352.775	216	6.263	
	Total	1462.790	220		
SHQ Total	Between Groups	224.006	4	56.001	.509
	Within Groups	9015.511	82	109.945	
	Total	9239.517	86		

** $p < 0.05$

An additional ANOVA was conducted to test group differences among years in school and anxiety, depression, and disordered eating. Results found that overall, there was no significance for year in school and anxiety ($F(4,205)=.893$, $p>.05$), depression ($F(4, 206)=.164$, $p>.05$), and disordered eating ($F(4,208)=.505$, $p>.05$). Results did indicate that juniors reported higher anxiety rates than their peers ($M=16.714$, $SD=5.97$), depression rates were reported higher for those out of undergraduate ($M=18.30$, $SD=5.92$), and disordered eating rates were reported higher for sophomores in the sample ($M=3.772$, $SD=1.29$).

CHAPTER FOUR

Discussion

This study explored the relationships between criticism viewed on social media with disordered eating behaviors, anxiety, and depression symptoms in a sample of females aged 18-24. Associations were found among average time spent on all social media outlets and disordered eating, anxiety, and depression. TikTok usage correlated to disordered eating patterns, while TikTok and Pinterest correlated with anxiety symptoms. Furthermore, individual websites and apps such as TikTok, YouTube, Pinterest, Snapchat, and Reddit correlated with higher levels of depression. Relationships were also found between participants who posted selfies or photos of themselves and those subjected to harsh/offensive comments on social media. Additionally, those who utilized filters or image-enhancing apps such as facetune were more likely to be subjected to harsh/offensive comments on social media than those who did not modify their images. A relationship was found between those who allowed strangers to follow them on social media sites and those who received harsh or offensive comments on social media. Relationships were also found among victims of critical comments made on social media and anxiety, depression, and disordered eating behaviors.

Furthermore, anxiety and the frequency of critical comments received on social media were related to disordered eating behaviors. The results of this study demonstrated correlations between an emotional reaction to critical comments and disordered eating, anxiety, and depression. Finally, the year in school was found to be a predictor of social media usage.

Previous research has found a significant association among social media usage and disordered eating behaviors, depression, and anxiety symptoms in women (Becker et al., 2011; Frisen et al., 2014; Hinduja & Patchin, 2010; Kaminiski & Fang, 2009; Parent & Bradstreet,

2017; Patchin & Hinduja, 2006; Schenk & Fremouw, 2012; Ybarra et al., 2012), which support the findings of this study. This can be explained by social comparison (Festinger, 1954) and objectification theories. Social comparison occurs when someone makes an upwards or downwards comparison to another, whom they deem as doing better or worse, to make themselves feel better or worse (Wills, 1981). Viewing images of people who are deemed better can lead to self-esteem and mental health issues (Alfasi, 2013; Fitzsimmons-Craft, 2017). Naturally, this theory could explain why these participants were affected by time spent on social media—frequent comparisons to what they are viewing against their bodies and insecurities. Furthermore, regular criticism received off social media by parents, friends, family, significant others, etc. has previously been shown to be impactful on disordered eating behaviors (Ausmus et al., 2021; Biesecker & Martz, 1999; Fransico et al., 2012; Kerr et al., 2006; Muscat & Long, 2008).

The results of the present study indicated that those who allow strangers to follow them on social media outlets were more likely to receive critical comments on social media. These participants also had greater chances of seeing themselves as victims of cyberbullying than those who did not allow strangers to follow them. In addition to the objectification theory (Fredrickson & Roberts, 1997), this could be explained in a variety of different ways. First the objectification theory postulates that individuals may be depreciated down to one part of their being instead of their entire being. This depreciation has been shown to cause psychological distress, possibly leading to pathology (Hurt et al., 2007; Miner-Rubino et al., 2002; Muehlenkamp & Saris-Baglama, 2002; Muehlenkamp et al., 2005; Tiggemann & Kuring, 2004). Moreover, it may be the simple act of allowing strangers access to social media could allow a certain amount of entree and therefore vulnerability to these participants that those who do not allow strangers access to

their social media accounts may be protected from. It is important to note that previous research conducted around cyberbullying has found that cyberbullying can lead to instances of emotional distress, poor body self-image, weight issues, suicidal ideation, anxiety, isolation, and depression (Frisen et al., 2014; Hunduja & Patchin, 2010; Kaminski & Fang, 2009; Patchin & Hinduja, 2006; Selkie et al., 2015; Schenk & Fremouw, 2012; Ybarra et al., 2012), which could be consistent to instances of objectification theory.

While many (32.6%) of the participants reported receiving criticism on social media, the majority (67.4%) reported that they had not been victims of criticism received on social media. This could be due to various reasons, such as not allowing strangers to follow them on social media (38% allowed strangers to follow them on social media) or even usage on specific sites or apps. This study found that TikTok, Instagram, and Snapchat were the three most used sites or apps for these participants. TikTok is primarily used as a passive scrolling site. Passively scrolling social media has been indicative of higher depression, anxiety, and disordered eating symptoms (Aalbers et al., 2019; Becker et al., 2011; Vannucci et al., 2017). TikTok is unique in that users can choose to engage in comments on TikTok, as they are primarily hidden. Individuals must seek out comments on TikTok by clicking a button to display them. One could hypothesize that this could act as a protective factor and shields participants from immediately viewing the comments. While TikTok usage correlated with disordered eating, depression, and anxiety symptoms in this study, it did not correlate with critical comments. Receiving critical comments on social media did coincide with depression, anxiety, and disordered eating symptoms in participants, which is indicative that while critical comments are psychologically damaging, critical comments on specific apps and sites were not tested.

Limitations

It is important to note the limitations of this study and provide suggestions for future research. One limitation for this study is the generalizability. While a relationship was found among the variables in this study for these participants, one cannot determine that social media usage or critical comments received on social media, or interactions on any one specific app or website can lead to depression, anxiety, or disordered eating symptoms. Furthermore, while this study does include participants from different years in school and different locations in the United States, the results of this study cannot be generalized to all women between the ages of 18-24, all women in college, or all women who utilize social media. Another limitation of this study is the use of self-reported scales in this study. While survey research is convenient and allows researchers to gather a large, diverse sample in a limited time, it is subject to various internal validity threats because there is limited control, such as group randomization, experimental design, and manipulation of the variables. Therefore, construct validity is threatened. In addition to the threat of internal validity, the survey neglected to ask about the ethnicity of participants. It would have been interesting to see how the results differed among a diverse sample. This could be important in understanding how women of different ethnic backgrounds utilize social media and how it may impact their mental health in addition to their background considerations.

Other considerations could be made for where participants post the most content, why they post there more, and what benefits do they receive from posting to those specific apps and websites. While this study did examine the impact of the critical comments, it could be beneficial to hear what each of the critical comments said to understand the deeper meaning and impact to these participants' mental health. Finally, while the survey only took 30 minutes to complete, the

time commitment could have caused potential participants not to participate. Therefore, the researcher included incentives such as randomized gift card drawings and bonus points for university students to combat this.

Implications

In addition to giving insight into determining how critical comments received on social media can impact females in college, the results from this study provide recognition into how social media usage, in general, can impact depression, anxiety, and disordered eating symptoms. This study is consistent with previous research that found that social media usage can impact mental health in this population and found that newer sites such as TikTok can also have impact. Results from this study are beneficial for women who engage in social media or are in college as a reminder of how potent social media can be in disrupting mental health.

Implications for Mental Health Providers

Results from this study could be beneficial for mental health providers, specifically those working with this population, and college counseling centers to assist in diagnosis and examining behaviors that may contribute to those diagnoses. This could be accomplished via social media usage history taking in intakes.

For those working with women in this age bracket, the implications in this study could be helpful in conceptualizing how to best serve their clientele. Counselors could conceptualize these findings to present to their clients the ways in which how one is treated by strangers on the internet could lead to deep psychological issues. Furthermore, as briefly touched on before, these findings could lead counselors to change their information gathering habits in their intake paperwork, asking more about the client's symptoms not only in relation to social media, but also their social environments in general. For college counselors, the results of this study could

lead to new and exciting psychoeducational opportunities in their offices, more training in safe social media usage, and the opportunity to discuss with their clients safe self-care practices in relation to social media. College counseling centers could create workshops and safe social media weeks where education is given to their clients and campus communities about safe social media practices and how to be kind to one another on social media. To prevent this from happening in the younger population, school counselors should be aware of the impact of social media on their students, especially how cyberbullying on social media can lead to psychological disruptions. This could also look like adding information into their intake sessions asking about social media use, who the students interact with on social media, and if their parents are monitoring their social media usage. Furthermore, school counselors could offer safe social media trainings to parents of their students to educate them on how social media could impact the psychological health of their children.

For those working with clients in inpatient or outpatient eating disorder or psychiatric facilities, education could be key. Group psychoeducation sessions about social media usage, the Ana and Mia pro eating disorder communities, and gaining knowledge on how their clients operate on social media could be helpful in treatment. Additionally, in these situations, it could be important to focus on these pro-anorexia and pro-bulimia communities on social media and combat these by advocating to social media companies to block these hashtags from use.

Implications for Medical Professionals

For medical professionals, such as women's health practitioners, the results from study serve as a reminder to check-in on what their patients are consuming on social media and how that may relate to how they see themselves or how they are caring for themselves in their everyday life. Medical professionals who work with teens and adolescents could begin to check

social media usage patterns in their patients, asking them how often they use social media, who they interact with, and what they are learning from social media to understand their consumption. Furthermore, educating these teens and adolescents on safe social media usage, in addition to educating their parents, could be beneficial. If their patient is showing worrisome social media tendencies or showing signs of disordered eating, eating disorders, depression, and/or anxiety, the providers should refer out to a mental health professional and ask the parents to help their clients limit their social media usage. This could be done through something as simple as recommending to patients that they monitor screen time and bring the report to their next appointment. Educational programs, especially for those who are preparing future medical professionals and counselors, should be teaching their providers-in-training about how to safely assess for problematic social media usage in their patients/clients, and how to educate their clientele on safe social media usage.

Implications for Educators and Others Who Work with Young People

Finally, for educators, parents, and individuals who interact with the population examined in this study, or perhaps even younger, the findings of this study could lead to new curriculum ideas on how to safely use social media for pleasure and networking tools as children, teens, and emerging adults move into transitional periods and begin preparing for life outside of school and the world of work. As stated above, beyond educating clients, efforts could be made in adding curriculum on how to talk about safe social media usage to provider training and teacher candidate programs. Furthermore, adding school assemblies on safe social media usage and making this education a part of teacher-parent conversations could be helpful as well.

Implications for Social Media Companies

While education is important, a systems change would be the most beneficial way in reducing the issues outlined in this study. While some social media sites have added suicide and mental health hotline warnings and tags to certain hashtags, it may be beneficial to expand that into blocked hashtags, educational programs via social media, and tighter age restrictions for joining social media or even limiting social media time on the apps for certain ages, like those under 18 or 21. Furthermore, social media companies could have dedicated teams monitoring dangerous hashtags such as pro-ana and pro-mia hashtags to delete and remove dangerous content quickly.

Future Directions

While research has been conducted on how critical comments impact the adolescent and college athletic populations (Ausmus et al., 2021; Muscat & Long, 2008), this study is the first to examine how critical comments received on social media can impact depression, anxiety, and disordered eating in women between the ages of 18-24. More research is needed to include the new social media sites discovered during this study. While one can infer that the participants could be posting these selfies on Instagram and Snapchat, a new social media site that the author was unaware of was reported by several participants in their usage demographics—an app called BeReal. This social media app has been proclaimed “Gen Z’s new favorite social media app” and requires that once a day, a person and all their friends on that app are required to post to the social media app within two minutes, with the idea that you must post regardless of what you are doing (Davis, 2022). This app automatically takes two photos, one with the back-facing camera and one with the front-facing camera, but no filters are allowed (Davis, 2022). Furthermore, if one decides they did not like the photo, their friends will be notified that they retook the picture

(Davis, 2022). Future studies may want to consider incorporating this site into the research, especially if the app continues to expand into new populations.

Additionally, it may be beneficial to replicate this study with adolescents, specifically those in high school, near the transition age for college or life beyond high school. Results from that study could be beneficial for parents and educators to assist in providing safe social media usage that those participants could then transfer into the college setting. Additional research may be beneficial to test the differences in reactions to critical comments received on social media between men and women, the differences between generations (i.e. Gen Z, Millennials, Gen Y, and baby boomers) and even more in-depth, a similar study could be conducted on the LGBTQIA+ population to see how criticism received on social media intersects with their identity and depression, anxiety, and disordered eating. In addition to these further studies, training programs similar to drug prevention programs in secondary schools, or safe alcohol usage programs in post-secondary institutions about safe social media usage in elementary and/or secondary schools could be helpful in teaching children on how to safely use and manage social media before they transition into young adulthood. According to research (Howard, 2018), children in the United States typically sign up for social media sites by the time they are a little over 12 years old. If schools, parents, or important people in children's lives could educate these pre-teens about the dangers of social media and how to safely navigate the online world, the psychological issues that may arise from social media usage could be prevented.

Conclusion

The purpose of this study was to examine the impact of critical comments on social media and their relationship to depression, anxiety, and disordered eating. The research indicated that social media usage and critical comments on social media correlated with higher instances of

psychological distress. These results could be beneficial for educators, mental health professionals, medical professionals, and social media companies in helping this population of 18-24 year old women and adolescents in teens in making wise social media choices and preventing this psychological distress. Future research in this area could focus on expanding similar studies to different populations, such as those in the LGBTQ+ communities, adolescents, and transition ages. Furthermore, research that includes the new and upcoming social media apps such as BeReal would be beneficial. Finally, education on safe social media usage in adolescents, teens, and college students should be considered a priority to educators and health care professionals.

CHAPTER FIVE

Manuscript

The Impact of Criticism and Social Media on College Females' Mental Health

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*** Please note: This manuscript has been formatted to fit the Eating Disorders Journal. This journal only allows 6,000 words including abstract and references.**

The Impact of Criticism and Social Media on College Females' Mental Health

Research has shown that utilizing social media sites and receiving weight-teasing or critical comments about one's body appearance can lead to depression, anxiety, and disordered eating behaviors. However, research examining all three constructs together is lacking. This quantitative explores the intersecting relationships of social media usage, criticism, disordered eating behaviors, depressive symptoms, and anxiety symptoms in females in college between the ages of 18-24. Instruments used in the study include a modified version of the Social Hassles Questionnaire (Muscat & Long, 2008), the EDE-Q (Fairburn & Beglin, 1994), the PHQ-9 (Spitzer et al., 1999), and the GAD-7 (Spitzer et al., 2006). This study found that there were relationships among emotional reaction to critical comments and DE, anxiety, and depression.

Key Words: Social networking, eating disorders, depression, anxiety, college women

Introduction

Social media (SM) has become an everyday part of life for today's world, providing quick and unfettered access to celebrities, politicians, friends, family, and complete strangers, unregulated social media comments has become an issue for mental health. Research has been conducted studying the impact of SM usage on mental health before, but research examining the effects of critical comments received on social media on mental health is still needed. The purpose of this study is to explore the impact of critical comments made on SM on disordered eating behaviors (DEB), depression, and anxiety in women between the ages of 18-24.

Research has linked SM usage and disordered eating (DE) (Fardouly & Vartanian, 2015; Hummel & Smith, 2015; Meier & Gray, 2014; Mabe et al., 2014; Mehdizadeh, 2010; Tiggemann & Slater, 2013). Problematic use of SM has been correlated with eating disorder symptoms and concerns (Santarossa & Woodruff, 2017). Correlation has also been found between SM and depression or precursors to depression such as increased loneliness, decrease in well-being, and envy (Frison & Eggermont, 2016; Mellor et al., 2008; Tandoc et al., 2015; Verduyn et al., 2015). Cunningham and colleagues (2012) found that the more time spent on SM, the greater the chance of depression symptoms. Brunborg and Andreas (2019) found that increased use of SM leads to an increase in depression symptoms. Finally, SM usage has also been linked to anxiety (Andreassen et al., 2016; Campisi et al., 2012; Nesi & Prinstein, 2015). Vannucci and colleagues (2017) found that in emerging adults, more time spent on SM was correlated with significant anxiety symptoms.

Research has historically linked weight-teasing to DEB and depression (Lieberman et al., 2001; Thompson et al., 1999). As many as 40% of adults in the U.S. have been victims of weight teasing and discrimination due to their weight, with 72% of college women being teased about their weight from childhood through adolescence (Cash, 1999; Himmelstein et al., 2017). Previous research has studied the link between weight teasing and mental health issues and have found overwhelming psychological impact (Ausmus et al., 2021; Biesecker & Martz, 1999; Fransico et al., 2012; Kerr et al., 2006; Muscat & Long, 2008). Furthermore, research has established that weight teasing by significant people in someone's life can be linked to DE (Baker et al., 2000; Puhl et al., 2017; Smolak et al., 1999; Vincent & McCabe, 2000).

While it has been established that weight teasing can correlate with the development of psychological issues, it is also important to review cyberbullying and its impact, especially on

the college-aged population. Cyberbullying victims have reported experiences like ‘regular’ bullying, such as emotional distress, poor body self-esteem, weight issues, depression, suicidal ideation, anxiety, and isolation (Frisen et al., 2014; Hunduja & Patchin, 2010; Kaminski & Fang, 2009; Patchin & Hinduja, 2006; Selkie et al., 2015; Schenk & Fremouw, 2012; Ybarra et al., 2012). In 2010, 22% of college-aged women reported being a victim of cyberbullying (Macdonald & Pittman, 2010). Furthermore, the study found that 25% of college students reported being cyberbullied via SM, with 6.8% having somebody post negative information or images of them (Macdonald & Pittman, 2010). Research has determined that college students who had been victims of cyberbullying were almost three times more likely to meet the criteria for clinical depression (Selkie et al., 2015), significant rates of anxiety, and paranoia than their peers who had not experienced cyberbullying (Schenk & Fremouw, 2012).

Because women between the ages of 18-24 are a vulnerable population, it is crucial to study how interactions on SM impact them. College women are already psychologically susceptible due to being in the age bracket for the onset of many psychiatric issues. While some studies have examined the role of body image critiques and their impact on women, it is important to understand how critical comments made on SM impact college females, especially since the increased usage of SM in this specific population. Therefore, the purpose of this study is to explore the interaction among criticism received on SM with DEB, anxiety, and depression symptoms.

Methods

This study used a quantitative, cross-sectional survey design to examine the impact of criticism viewed on SM on DEB, anxiety, and depression in female between 18-24 years.

Research Questions

1. What is the relationship between SM usage and DEB, depression, and anxiety in females in college between the ages of 18-24 years?
2. Does receiving negative body image criticism as part of SM use impact depression, anxiety, and DE symptoms?
3. Are there relationships among reaction to general criticism (i.e., emotional reaction and severity) received on SM about physical appearance and DEB, depression and anxiety symptoms in females in college between the ages of 18-24 years?
4. Are there relationships among years in school (i.e., first-year student, sophomore, junior, senior) and SM usage, anxiety, depression, or DE symptoms in females in college between the ages of 18-24 years?

Instruments

The participants were asked to complete a descriptive questionnaire, a modified version of the Social Hassles Questionnaire (Muscat & Long, 2008), the Eating Disorder Evaluation-Questionnaire (Fairburn & Beglin, 1994), the Patient Health Questionnaire-9 (Spitzer et al., 1999), and the Generalized Anxiety Disorder Scale-7 (Spitzer et al., 2006).

Descriptive Questionnaire. The researcher developed twenty-two items to explore basic demographical information about the participant, including age and year in school. Additionally, questions about what the participants perceive as their ideal body image, their current body image, and SM engagement, such as whether they allow strangers to follow them on SM and whether they have ever been victims of offensive and harsh comments on SM were asked. Two items were developed by Sidani and colleagues (2015) that ask the participants to estimate how often they used SM in 24 hours and how often they visit SM websites. Sidani and colleagues' scale was slightly modified, with Google+, a now-defunct SM site, being replaced by TikTok,

which has seen exponential growth in the generation z population during the last three years (Geyser, 2021).

Modified Social Hassles Questionnaire. The Social Hassles Questionnaire (SHQ; Muscat & Long, 2008) was originally developed to measure the impact of critical comments friends on female athletes. This instrument has three subscales that examine the frequency of critical comments, the emotional response to the comments, and the severity of the comments. For this study, the SHQ was modified with adjustments made to recognize how the participants reacted to critical comments made **on social media** about their bodies or looks. There are 12 items in total, with 6 Likert-scale questions ranging from 1 (not at all affected) to 4 (very affected), and 6 Likert-scale items examining the emotions felt around the comment or how well they remembered the comment. The sum of the Likert Scale items indicates how much the critical comment impacted the participant, with lower scores indicating less impact and higher scores indicating a severe impact. Internal consistency was .65 for negative emotions and .83 for positive emotions. Cronbach's alpha for the severity of critical comment items was .78 (Muscat & Long, 2008).

Eating Disorder Evaluation-Questionnaire (EDE-Q). The Eating Disorder Evaluation-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) was used to assess DEB and DE attitudes. The EDE-Q consists of 28 items on four different subscales. These subscales measure restraint, eating concern, shape concern, and weight concern over 28 days. To calculate the scores, ratings from each subscale are averaged by the total number of items on the individual subscale. The higher the score, the greater the symptomatology. To achieve a 'global' score, the four subscales are averaged, with the higher the score, the greater the symptomatology. The EDE-Q has

exceptional internal consistency (.81) and 2-week test-retest reliability for the five subscales (.94) (Luce & Crowther, 1999; Mond et al., 2004).

Patient Health Questionnaire-9 (PHQ-9). The Patient Health Questionnaire-9 (PHQ; Spitzer et al., 1999) measures depression symptoms. The scale consists of nine items measuring depression symptoms over two weeks. The scores of each item are added together to create a total with the higher the total score equating a greater chances of a clinical depression diagnosis. The lowest score possible is 0, and the highest score possible is 27, indicating severe depression symptoms. The internal reliability of the PHQ-9 is acceptable to very good, ranging from .73 to .89 (Kroenke et al., 2001). A PHQ-9 score greater than or equal to 10 had both sensitivity and specificity of 88% for major depression.

Generalized Anxiety Disorder Scale-7 (GAD-7). The Generalized Anxiety Disorder Scale-7 (GAD-7; Spitzer et al., 2006) measures anxiety symptoms. The scale consists of seven items measuring anxiety symptoms over two weeks. The scale asks over the last two weeks, how often have you been bothered by the following symptoms?" with symptoms measured on on a Likert Scale with 0 being "not at all" to 3 "nearly every day." The items sum with the higher the scores, the greater the chances of having a clinical, diagnosable anxiety disorder. The lowest score possible is 0, and the highest score possible is 21, indicating severe anxiety symptoms. The internal reliability of the GAD-7 ranges from very good to excellent, at .83 to .92, respectively (Spitzer et al., 2006).

Procedures

Prior to data collection, approval was obtained from the University Institutional Review Board. Upon approval, a request for participation was be distributed via email, word-of-mouth, flyers, SM, and the university SONA system. The SONA system is a research management tool

that connects undergraduates with faculty and graduate students who are seeking participants for research. The request included the link to a Qualtrics-based survey which included an information letter and components of the survey, including demographics, the modified SHQ, the EDE-Q, the PHQ-9, and the GAD-7. The participants were informed via the information letter that the information they provided was completely anonymous. Participants were informed that after completing the survey, they may continue to a separate survey to enter a drawing to win one of 20 \$25 Amazon gift cards. On average, the survey took 30 minutes to complete.

Results

The participants were comprised of 236 females between the ages of 18-24 ($M=20.46$). Twenty one percent of the participants were first-year student ($N=50$), 19.5% were sophomore ($N=19.5$), 26.7% were juniors ($N=63$), 22.5% were seniors ($N=53$), and 10.2% reported being “other” such as a graduate student or medical student ($N=24$). Most participants ($N=204$; 86%) reported having received criticism from important people in their life about their weight or physical appearance. Results found that 97.5% of the participants engaged in SM ($N=230$). Sixty nine percent reported posting photos or “selfies” to SM outlets ($N=165$), with 47.9% reporting using photo-editing apps such as facetune and filters to enhance their appearance ($N=113$). Thirty eight percent reported that they accept strangers who try to follow them on SM ($N=131$). 32.6% reported being a victim of harsh and offensive comments on SM ($N=77$), with 18.6% reporting being a victim of cyberbullying ($N=44$). Table 1 details the usage for each of the SM sites included in the demographics questionnaire. Table 2 details how often the participants posted on each outlet. Results indicated that the average time spent on SM for all participants was 4.26 hours per day ($SD=2.579$), with TikTok and Snapchat being most utilized. The usage

for each individual SM outlet was scaled on a Likert scale ranging from 1 (I don't use this platform at all), to 7 (5 or more times per day).

Table 1

Means and standard deviations of each SM outlet is used.

Outlet	M	SD
Facebook	1.96	.721
Twitter	1.58	.797
Tik Tok	2.81	1.12
YouTube	2.17	.923
Instagram	2.75	.774
Pinterest	1.79	.710
Tumblr	1.14	.470
Snapchat	2.73	1.09
Reddit	1.32	.633
Other	1.10	.436

Note: Likert Scale options: 1 (I don't use this platform at all), 2 (Less than once a week), 3 (1-2 days a week), 4 (3-6 days a week), 5 (about once a day), 6 (2-4 times a day), 7 (5 or more times a day).

Table 2

Means and standard deviations of each SM outlet is used.

Outlet	M	SD
Facebook	1.18	.817
Twitter	1.52	.932
Tik Tok	1.89	.843
YouTube	1.54	.664
Instagram	2.20	.736
Pinterest	1.59	.784
Tumblr	1.16	.477
Snapchat	3.33	1.77
Reddit	1.20	.492
Other	1.16	.714

Note: Likert Scale options: 1 (I don't use this platform at all), 2 (Less than once a week), 3 (1-2 days a week), 4 (3-6 days a week), 5 (about once a day), 6 (2-4 times a day), 7 (5 or more times a day).

Analysis

The relationships between SM usage and DE in this study sample was examined using Pearson's bivariate correlations. Results indicated that there was a significant positive correlation between average time spent on all SM outlets and DE ($r = .152, p < .05$). Further Pearson's correlation results indicated that time spent on TikTok correlated with overall DE ($r = .208, p < .05$).

The relationship between SM usage and depression was among participants was analyzed via Pearson's correlations. Results demonstrated that overall time spent on SM correlated with depressive symptoms ($r = .225, p < .01$). When broadly observed by hours per day spent on individual SM outlets, there was a positive correlation among depressive symptoms and TikTok ($r = .201, p < .05$), Youtube ($r = .183, p < .05$), Pinterest ($r = .160, p < .05$), Snapchat ($r = .183, p < .05$), and Reddit ($r = .186, p < .05$).

The relationship between SM usage and anxiety symptoms in this sample was examined using Pearson's correlations. Results indicated that average time spent on SM correlated with anxiety symptoms ($r = .149, p < .05$). An additional Pearson's correlation indicated a significant correlation between anxiety symptoms and TikTok usage ($r = .150, p < .05$) and Pinterest usage ($r = .177, p < .05$). Results also indicated a positive correlation between anxiety and depressive symptoms ($r = .764, p < .001$). Depression and anxiety also correlated with all subscales of the EDE-Q (Table 3).

Table 3
Pearson Correlation for Depression, Anxiety, and EDE-Q subscales

	Restraint	Eating Concern	Shape Concern	Weight Concern	Global
Depression	.478**	.565**	.553**	.477**	.582**
Anxiety	.440**	.520**	.475**	.423**	.523**

** $p < 0.01$

Reception of negative body image criticism as part of SM use impact depression, anxiety, and DE symptoms was analyzed via Pearson's correlations. Results indicated that participants who posted photos or selfies on SM were more often the victims of offensive/harsh comments on social media ($r=.273, p<.001$). Furthermore, those who facetuned their appearance or used filters were also more likely to have been a victim of harsh/offensive comments on SM ($r = .14, p < .05$). Results also indicated that those who allow strangers to follow them on SM were more likely to have been a victim of harsh/offensive comments on SM ($r = .225, p <.001$) and there was a positive correlation found between those who allow strangers to follow them on SM and those who consider themselves a victim of cyberbullying ($r=.610, p <.001$). Results indicated a negative correlation between receiving harsh/offensive comments on SM and DE ($r = -.236, p <.01$). Results also indicated a negative correlation between receiving harsh/offensive comments on SM and anxiety ($r = -.194, p < .01$), and depressive symptoms ($r = -.204, p < .01$). There was a significant positive correlation between severity of the critical comment received on SM and DE ($r = .572, p <.001$), anxiety ($r = .354, p = .001$), and depression ($r = .375, p <.001$). Results revealed a significant positive correlation between frequency of critical comments and DE ($r = .287, p <.05$). Furthermore, correlations were found among emotional reaction to the critical comments and DE ($r = .364, p<.001$), anxiety ($r = .276, p < .05$), and depression ($r = .227, p =.05$).

The relationships among general criticism (i.e. emotional reaction and severity) received on SM about physical appearance and DEB, depression symptoms, and anxiety symptoms among participants in this study analyzed via multiple regression analysis to examine the relationships among DEB, anxiety, depression symptoms, and the frequency of critical

comments received on social media (Table 4). The multiple regression model with all six predictors was statistically significant, $R^2 = .157$, $F(6, 81) = 2.334$, $p < .05$.

Table 4
Regression Analysis for Social Hassles Questionnaire Frequency of Critical Comments Subscale

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Restraint Subscale	-.124	-.057	-.339	.735	[-.852, .604]
EDEQ Eating Concern Subscale	-.585	-.244	-1.279	.205	[-1.496, .326]
EDEQ Shape Concern Subscale	1.645	.595	2.538	.013	[.354, 2.937]
EDEQ Weight Concern Subscale	.047	.016	.086	.932	[-.1.05, 1.14]
PHQ Total	-.056	-.093	-.550	.584	[-.257, .146]
GAD Total	.057	.092	.566	.573	[-.145, .260]

Dependent variable: Social Hassles Questionnaire Frequency of Critical Comments Subscale

An additional multiple regression analysis was employed to examine relationships among DEB, anxiety, depression symptoms, and the severity of critical comments received on SM (Table 5). The multiple regression model with all six predictors was statistically significant, $R^2 = .371$, $F(6, 81) = 7.386$, $p < .001$.

Table 5
Regression Analysis for dependent variable Social Hassles Questionnaire Severity of Critical Comments Subscale

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Restraint Subscale	.104	.075	.515	.608	[-.299, .507]
EDEQ Eating Concern Subscale	-.010	-.006	-.038	.970	[-.514, .495]
EDEQ Shape Concern Subscale	.645	.364	1.797	.076	[-.070, 1.36]
EDEQ Weight Concern Subscale	.274	.147	.900	.371	[-.332, .880]
PHQ Total	.010	.026	.179	.858	[-.101, .121]
GAD Total	.038	.096	.682	.497	[-.074, .150]

Dependent variable: Social Hassles Questionnaire Frequency of Severity of Critical Comments Subscale

A third multiple regression analysis was employed to predict relationships between DEB, anxiety, depression symptoms, and the emotional reaction to critical comments received on social media (Table 6). The multiple regression model with all 6 predictors was statistically significant, $R^2 = .198$, $F(6, 81) = 3.080$, $p < .05$.

Table 6
Regression Analysis for dependent variable Social Hassles Questionnaire Emotional Reaction to Critical Comments Subscale

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Restraint Subscale	.320	.072	.436	.664	[-1.14, 1.78]
EDEQ Eating Concern Subscale	.519	.105	.565	.574	[-1.31, 2.35]
EDEQ Shape Concern Subscale	2.537	.446	1.949	.055	[-.056, 5.13]
EDEQ Weight Concern Subscale	-1.440	-.240	-1.304	.196	[-3.64, .760]
PHQ Total	-.169	-.138	-.834	.407	[-.573, .235]
GAD Total	.222	.173	1.087	.280	[-.185, .628]

Dependent variable: Social Hassles Questionnaire Emotional Reaction to Critical Comments Subscale

A final multiple regression analysis was done to determine interaction between the total social hassles questionnaire results (i.e., how much critical comments received on SM impacted with the participant) and depression, anxiety, disordered eating, overall SM usage, and TikTok, Instagram, and Snapchat usage (Table 7). The multiple regression model with all seven predictors was statistically significant, $R^2 = .318$, $F(7, 80) = 4.861$, $p < .001$.

Table 7
Regression Analysis for dependent variable Social Hassles Questionnaire Total Score

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>	95% CI
EDEQ Total	3.463	.440	3.714	<.001	[1.61, 5.32]
PHQ Total	-.217	-.131	-.836	.406	[-.733, .300]

GAD Total	.376	.215	1.479	.143	[-.131, .883]
Instagram	.085	.007	.055	.956	[-2.99, 3.16]
TikTok	2.499	.254	1.812	.074	[-2.49, 5.25]
Snapchat	-.164	-.018	-.156	.876	[-2.27, 1.94]
Total Time Spent on SM	-.951	-.261	-1.885	.063	[-1.96, .055]

Dependent variable: Social Hassles Questionnaire Total Score

Finally, the relationships among year in school and social media usage, anxiety, depression, or disordered eating in females in college between the ages of 18-24 was analyzed via an analysis of variance (ANOVA) to test group differences among year in school by SM usage, and SM criticism impact (Table 8). Results indicated that overall, sophomores spent the most time on SM overall (M=5.36, SD=3.945), while sophomores were interacting on SM more than their peers, juniors were more impacted by critical comments than any other group (M=57.88, SD= 10.51). There was a significant effect for year in school on time spent on SM at the $p < .05$ level for the five conditions which were individual years in school, $F(4, 220) = 4.392$, $p < .05$. Additionally, there was not a significant effect for year in school on social media criticism impact at the $p < .05$ level for the five conditions, $F(4, 86) = .509$, $p > .05$.

Table 8
Summary of ANOVA

		Sum of Squares	df	Mean Square	F
Social Media Total	Between Groups	110.014	4	27.504	4.392*
	Within Groups	1352.775	216	6.263	
	Total	1462.790	220		
SHQ Total	Between Groups	224.006	4	56.001	.509
	Within Groups	9015.511	82	109.945	
	Total	9239.517	86		

** $p < 0.05$

An additional ANOVA was conducted to test group differences among year in school and anxiety, depression, and DE. Results found that overall, there was no significance for year in

school and anxiety ($F(4,205)=.893, p>.05$) and DE ($F(4, 208)=.505, p>.05$). Results indicated that juniors reported higher anxiety rates than their peers ($M=16.714, SD=5.97$), depression rates were reported higher for those out of undergraduate ($M=18.30, SD=5.92$), and DE rates were reported higher for sophomores. ($M=3.772, SD=1.29$).

Discussion

The aim of this study was to explore the relationships among criticism on SM with DEB, anxiety, and depression symptoms. Links were found among average time spent on all SM outlets and DE, anxiety, and depression. Links were also found between participants who posted selfies or photos of themselves and those who were subject to harsh/offensive comments. Results demonstrated that those who utilized filter or image-enhancing apps such as facetune were also more likely to be subjected to harsh/offensive comments. Relationships were found between those who allow strangers to follow them on sites and those who receive harsh/offensive comments. Links were found between being the victim of critical comments on SM and anxiety, depression, and anxiety and the frequency of critical comments and DE. Finally, this study found that there were relationships among emotional reaction to critical comments and DE, anxiety, and depression.

Previous research has found significant association among SM usage and DEB, depression, and anxiety symptoms in women (Becker et al., 2011; Frisen et al., 2014; Hinduja & Patchin, 2010; Kaminiski & Fang, 2009; Parent & Bradstreet, 2017; Patchin & Hinduja, 2006; Schenk & Fremouw, 2012; Ybarra et al., 2012), which corresponds to the findings of this study. This can be explained by both the social comparison (Festinger, 1954) and objectification theories. Social comparison theory is the result of one making either an upwards or downwards comparison to another who they deem is doing better or worse than them to make themselves

feel better or worse (Wills, 1981). Viewing images of people who one deems better than can certainly lead to self-esteem issues and subsequently mental health issues (Alfasi, 2013; Fitzsimmons-Craft, 2017). Naturally, this could be an explanation as to why these participants were affected by time spent on SM—frequent comparison to what they are viewing on social media against their own bodies and insecurities. The present study found that those who allow strangers to follow them on SM were more likely to receive critical comments. These participants also had greater chances of seeing themselves as victims of cyberbullying than those who did not allow strangers to follow them. The objectification theory (Fredrickson & Roberts, 1997) could explain the findings of this study that indicated criticism on SM correlated with DE, depression, and anxiety symptoms. This finding is consistent with previous research conducted around cyberbullying that has found that cyberbullying can lead to instances of emotional distress, poor body self-image, weight issues, suicidal ideation, anxiety, isolation, and depression (Frisen et al., 2014; Hinduja & Patchin, 2010; Kaminski & Fang, 2009; Patchin & Hinduja, 2006; Selkie et al., 2015; Schenk & Fremouw, 2012; Ybarra et al., 2012).

While many of the participants did indicate receiving criticism on social media, more of the participants of this study indicated that they had not been victims of criticism received on SM. This could be due to a variety of reasons, such as not allowing strangers to follow them, or even usage on certain sites. The results of this study found that TikTok, Instagram, and Snapchat were the three most used sites for participants. TikTok is primarily used as a passive scrolling site, i.e., scrolling through news feeds or browsing photographs of friends (Aalbers et al., 2010), and while passively scrolling social media has been indicative of higher depressive, anxiety, and disordered eating symptoms (Aalbers et al., 2019; Becker et al., 2011; Vannucci et al., 2017), users can choose to engage in comments on TikTok, as they are primarily hidden. While TikTok

usage correlated with disordered eating, depression, and anxiety symptoms in this study, it did not correlate with critical comments. While Instagram and Snapchat were both highly used, neither correlated with critical comments received on social media, but those who reported posting selfies or photos on social media did report higher levels of criticism received on social media. While one can infer that these participants could be posting these selfies on Instagram and Snapchat, a new outlet that the author was unaware of was reported by several participants in their usage demographics—an app called BeReal. This SM app acts on the basis that once a day a person and all their friends on that app are required to post to the app within two minutes, with the idea that you must post whatever you are doing, whoever you are with (Davis, 2022). This app takes two photos at once, one with the back camera, and one with the front camera, but no filters are allowed (Davis, 2022). Furthermore, if one decides they did not like the photo taken, their friends will be notified that they retook the picture (Davis, 2022). Future studies may want to consider incorporating this site into their demographics, especially if the app continues to expand into new populations.

More research is needed to include the new SM sites that the researchers did not include in this study. Furthermore, it may be beneficial to replicate this study with adolescents. Results from that study could be beneficial for parents and educators to assist in how to provide safe SM usage education as they transfer into the college. Research to test the differences in reactions to critical comments received on SM between men and women may be needed. Additionally, a similar study could be conducted in the LGBTQIA+ population to see how criticism received on SM intersects with their identity and depression, anxiety, and DE.

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Appendix A

Descriptive Questionnaire

Please answer each item in the survey to the best of your ability. Instructions are provided throughout the survey.

What is your gender?

- Male
 - Female
 - Non-binary
 - Trans*
 - Other: _____
-

What is your age in years?

Are you currently enrolled in college classes?

- Yes
 - No
-

What year are you in school?

- Freshman
 - Sophomore
 - Junior
 - Senior
 - Other _____
-

Have you ever received criticism from important people in your life such as coaches, peers, friends, parents, teachers, etc. about your weight or physical appearance?

- Yes
 - No
-

Describe what you imagine as your 'ideal' body:

How would you describe your own body currently?

How satisfied are you with the way your body looks currently?

- Extremely satisfied
 - Somewhat satisfied
 - Neither satisfied nor dissatisfied
 - Somewhat dissatisfied
 - Extremely dissatisfied
-

Do you engage in social media?

- Yes
 - No
-

If you do not engage in social media, why?

- I don't know what social media is
 - I'm not interested in social media
 - I joined once, but did not enjoy it
 - I find it too stressful
 - It's against my culture or beliefs
 - No privacy
 - Other: _____
-

Please indicate how often you visit or use the following social media platforms:

	I don't use this platform	Less than once per week	1-2 days a week	3-6 days a week	About once day	2-4 times a day	5 or more times a day
Facebook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tik-tok	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Youtube	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pinterest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tumblr	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Snapchat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reddit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, please specify	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

On average, how much time (in hours) per day do you spend on social media overall?

On average, how much time (in hours) per day do you spend on the following social media outlets?

	I don't use this platform	Less than one hour per day	1-2 hours a day	3-6 hours a day	7-9 hours a day	10-12 hours a day	13+ hours a day
Facebook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tik-tok	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Youtube	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pinterest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tumblr	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Snapchat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reddit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, please specify	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

On average, how often do you post on the following social media outlets?

	I don't use this platform	Less than once a week	1-2 days a week	3-6 days a week	About once a day	2-4 times a day	5 or more times a day
Facebook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tik-tok	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Youtube	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pinterest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tumblr	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Snapchat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reddit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, please specify	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you post photos or "selfies" on social media?

Yes

No

If you post photos on these social media outlets, do you use a photo-editing app (such as facetuner) or filters to enhance your appearance?

Yes

No

Do you accept strangers who try to friend/follow you on social media?

Yes

No

Have you ever been a victim of offensive/harsh comments on social media?

Yes

No

Would you consider yourself a victim of cyber-bullying?

Yes

No

Do you personally know the person who sent you offensive/harsh comments on social media?

Yes

No

Other: _____

What do you think is the biggest mental health issue facing college students today (you may choose more than one)?

- Anxiety
- Depression
- Stress/Pressure
- Other (please elaborate):

Does your campus have any mental health assistance such as counseling provided on campus?

- Yes
- No
- I Don't Know

Appendix B

Modified Social Hassles Questionnaire

Do you remember someone ever making a critical comment that your body should be a certain shape, weight, or that there was a need to diet or lose weight or increase food intake to gain weight on social media?

Yes

No

How long ago did the stressful comment on social media about your body occur?

Within the past 6 months

Within the past year

1 year ago

2 years ago

3 years ago

4+ years ago

How often have you received critical comments about your body on social media?

Every day

2-3 times a month

Less than 3 times a month

How long have you been experiencing these stressful comments about your body on social media?

- 6 months
 - 1 year
 - 2 years
 - 3 years
 - 4+ years
-

How well do you remember the comment made on social media about your body?

- Not well at all
 - Slightly Well
 - Moderately Well
 - Very Well
 - Extremely Well
-

To what degree did the comment about your body on social media have an impact on your behavior/attitude towards your body?

- No impact at all
 - A little bit of impact
 - Quite a bit of impact
 - A lot of impact
-

To what degree did you feel upset by the person's comment on social media about your body?

- Not at all upset
 - A little bit upset
 - Quite a bit upset
 - Very upset
-

To what degree did you feel the comment made by this person on social media about your body has had an impact on how conscious you are about your body shape, diet, or need to change your weight?

- Not at all conscious
 - A little bit conscious
 - Quite a bit conscious
 - Very conscious
-

To what degree did you feel the comment made by this person on social media about your body has resulted in you attempting to make changes to your body?

- No changes at all attempted
 - A little bit of change attempted
 - Quite a bit of change attempted
 - Definitely attempted a lot of changes
-

To what degree did you feel your self-esteem was threatened by the comment made on social media about your body shape, diet, or need to change your weight?

- Not threatened at all
 - Felt a little threatened
 - Felt somewhat threatened
 - Felt very threatened
-

To what degree did you feel you had failed their expectations when you heard the person comment on social media about your body shape, diet, or need to change your weight?

- I did not feel like a failure
 - Felt a little bit like I failed
 - Felt somewhat like I failed
 - Felt like a failure
-

This scale consists of words that describe different feelings and emotions. Read each item and then mark the appropriate answer on the scale. Indicate to what extent you felt the emotion in reaction to the social media comment made about your body

	Not at all	Very Little	Moderately	Quite a bit	Extremely
Anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anxiety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fright	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shame	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Envy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jealousy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Happiness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relief	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hope	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Love	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gratitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compassion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix C

Eating Disorders Examination-Questionnaire

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all of the questions. Please only choose one answer for each question.

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

	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
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)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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)?

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

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

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)?

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)?

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

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

Have you felt fat?

Have you had a strong desire to lose weight?

Please fill in the appropriate number in the boxes below. Remember that the questions only refer to the past four weeks (28 days).

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)?

Over the past 28 days, how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?

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)?

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

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?

Please select 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.

	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
Over the past 28 days, on how many days have eaten in secret (i.e. furtively)?... Do not count episodes of binge eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please select 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.

	Not at all	A few of the times	Less than half	Half of the times	More than half	Most of the time	Every time
On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effects on your shape or weight?... do not count episodes of binge eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please select 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.

	Not at all - 0	Slightly- 1	Slightly - 2	Moderately -3	Moderately - 4	Markedly- 5	Markedly- 6
Over the past 28 days, how concerned have you been about other people seeing you eat? ... do not count episodes of binge eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please select the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days). On how many of the past 28 days...

	No t at all - 0	Slightly - 1	Slightl y - 2	Moderatel y -3	Moderatel y - 4	Markedly - 5	Markedly -6
Has your weight influenced how you think about (judge) yourself as a person?	(<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has your shape influenced how you think about (judge) yourself as a person?	(<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much would it upset you if you had been asked to weigh yourself once a week (no more or less often) for the next four weeks?	(<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How dissatisfied have you been with your weight?	(<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How dissatisfied have you been with your shape?	(<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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)?

(○ ○ ○ ○ ○ ○ ○

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

(○ ○ ○ ○ ○ ○ ○

Appendix D

Patient Health Questionnaire-9

Instructions: The following questions are concerned with the past two weeks (14 days) only. Please read each question carefully.

Please answer all of the questions. Please only choose one answer for each question.

Over the past two weeks, how often have you been bothered by any of the following problems?

	Not at all	Several Days	More than half the days	Nearly every day
Little interest or pleasure in doing things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling down, depressed, or hopeless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trouble falling asleep, staying asleep, or sleeping too much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling tired or having little energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor appetite or overeating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling bad about yourself... or that you are a failure or have let yourself or your family down	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trouble concentrating on things, such as reading the newspaper, or watching television	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Moving or speaking so slowly that other people could have noticed. Or the opposite- being so figety or restless that you have been moving around a lot more than usual

Thoughts that you would be better off dead or of hurting yourself

Appendix E

Generalized Anxiety Disorder Scale-7

Instructions: The following questions are concerned with the past two weeks (14 days) only. Please read each question carefully. Please answer all of the questions. Please only choose one answer for each question.

Over the past two weeks, how often have you been bothered by any of the following problems?

	Not at all	Several Days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not being able to stop or control worrying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worrying too much about different things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trouble relaxing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being so restless that it's hard to sit still	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Becoming easily annoyed or irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling afraid as if something awful might happen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix F

IRB Approval

Subject: Ausmus Approval, Exempt Protocol #22-011 EX 2201, "The Impact of Criticism and Social Media on College Women's Mental Health"
Date: Wednesday, January 19, 2022 at 8:03:27 AM Central Standard Time
From: IRB Administration
To: JC Ausmus
CC: Jill Meyer, Jeff Reese
Attachments: Investigators Responsibilities rev 1-2011.docx, Ausmus 22-011 EX 2201 New Revisions.pdf

Use [IRB Submission Page](#) for protocol-related submissions and IRBadmin@auburn.edu for questions and information. The IRB only accepts forms posted at <https://cws.auburn.edu/vpr/compliance/humansubjects/?Forms> and submitted electronically.

Dear Ms. Ausmus,

Your protocol entitled "The Impact of Criticism and Social Media on College Women's Mental Health" has been approved by the IRB as "Exempt" under federal regulation 45 CFR 46.101(b)(1,2). Attached is a copy of your approved request.

Official notice:

This e-mail serves as official notice that your protocol has been approved. By accepting this approval, you also accept your responsibilities associated with this approval. Details of your responsibilities are attached. Please print and retain.

Expiration:

Continuing review of this Exempt protocol is not required; however, all modification/revisions to the approved protocol must be reviewed and approved by the IRB.

- When you have completed all research activities, have no plans to collect additional data and have destroyed all identifiable information as approved by the IRB, please notify this office via e-mail. A final report is no longer required for Exempt protocols.

PLEASE NOTE: If any unfunded, IRB-approved study should later receive funding, you must submit a MODIFICATION REQUEST for IRB review. In the request, identify the funding source/sponsor and AU OSP number. Also, revise IRB-stamped consent documents to include the Sponsor at the top of page 1 and the "Who will see study data?" section of consent documents." (see online template consent documents).

Best wishes for success with your research!

IRB Admin
Office of Research Compliance
Auburn University
540 Devall Drive
Auburn, AL

Appendix G

Informational Letter

INFORMATIONAL LETTER

For a Research Study entitled

“The impact of criticism and social media on college females’ mental health”

You are invited to participate in a research study. The research is intended to explore the relationship among criticism viewed on social media with disordered eating behavior, anxiety, and depression symptoms in college women. This study is being conducted by J.C. Ausmus under the direction of Dr. Jill Meyer (jmm0079@auburn.edu) and the department of Special Education, Rehabilitation, and Counseling at Auburn University. You were selected as a possible participant because you are a female college student and between the ages of 18-24.

What will be involved if you participate? If you decide to participate in this research study, you will be asked to complete an online Qualtrics survey. Your total time commitment will be approximately 30-35 minutes.

Are there any risks or discomforts? The possible risks associated with this study are minimal and may include mild discomfort due to the nature of the questions asked (e.g., experiences with mental health, eating behaviors, depression, and anxiety symptoms) but nothing above and beyond what you would experience in everyday life. If you change your mind about participating in this study, you may withdraw at any time by simply closing your browser window. If you become distressed by the questions asked, we encourage you to seek out your campus counseling center, community counseling center, or call one of the following hotlines:

National Eating Disorder Association Helpline: 800-931-2237

Substance Abuse and Mental Health Administration Helpline: 800-662-4357

National Suicide Prevention Lifeline: 800-273-8255

Are there any benefits to yourself or others? If you participate in this study, your responses will help us learn more about help-seeking behaviors in female college students.

Will you receive compensation for participating? The first 200 participants in the study will be eligible to enter a random drawing for one of 20 \$25.00 Amazon gift cards. You will be asked at the end of the survey if you would like to enter a random drawing for one of 20 \$25 Amazon gift cards. If you select yes, you will be redirected to a separate link to enter the drawing.

If you change your mind about participating, you can withdraw at any time during the study by simply closing your browser window. Your participation is completely voluntary.

Your privacy will be protected. We will protect your privacy and data you provide by keeping personal information confidential. Information collected through your participation will be completely anonymous and will in no way be tied to you. Information collected through your participation may be used to fulfill an educational requirement, published in a professional journal, and/or presented at a professional conference.

If you have questions at any time about the study or the procedures, please contact J.C. Ausmus at jza0079@auburn.edu or Dr. Jill Meyer at jmm0079@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

J.C. Ausmus, MS, MA, APC, NCC – Investigator
Doctoral Candidate, Auburn University

Dr. Jill Meyer—Faculty Supervisor
Professor, Auburn University

Appendix H

Flyer

THE IMPACT OF CRITICISM AND SOCIAL MEDIA ON COLLEGE FEMALES' MENTAL HEALTH

IRB #

College women between the ages of 18-24 are invited to participate in a study to explore their the relationship among criticism viewed on social media with disordered eating behavior, anxiety, and depression symptoms in college women. The survey should take approximately 30-35 minutes to complete and all information is anonymous. Please go to the web address listed below or scan the QR code if you wish to participate. **If you participate, you can choose to be entered into a random drawing to win one of 20 \$25 Amazon Gift Cards.** If you have any questions, please email the primary researcher, J.C. Ausmus, M.S., M.A., APC, NCC at jza0079@aubum.edu

Survey URL:

AUB.IE/COLLEGEWOMENSTUDY13



The Auburn University Institutional Review Board has approved this document for use from 07/20/2022 to 07/20/2023