

Research Proposal: An Observational, Cross-Sectional Study to Assess the Relationship
Between Social Media Use and Disordered Eating in Adolescent Males Compared to
Adolescent Females

by

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Abstract

An overexposure to digital media is associated with eating concerns, disordered eating, and eating disorders (Sidani et al., 2016). This study aims to determine if there is a correlation between frequency of social media use and disordered eating, if there is a difference in the prevalence of disordered eating among social media-using adolescent boys and girls, and if the relationship between frequency of social media use is the same for adolescent boys and girls. To examine this relationship, 336 social media-using 14-18-year-old male and female students at a public high school in Euless, Texas, will be recruited for the study. Participants will be asked to complete a digital survey containing questions about demographic information, social media use, and disordered eating behaviors. It is anticipated that there will be a moderate positive relationship between disordered eating and social media use shown in the sample ($p < .05$). Additionally, females are predicted to have a higher mean on the disordered eating scale compared to males ($p < .05$). Finally, as social media use increases, the severity of disordered eating is predicted to increase for both males and females. However, results show a stronger positive relationship between social media use and disordered eating among females compared to males ($p < .05$). The proposed study has the potential to pave the way for more extensive studies, projects, prevention, and intervention programs. A focus on this under-researched population will help health care practitioners better understand their patients, clients, and the public as a whole.

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Table of Contents

Chapter 1: Introduction of the Study.....	10
Background.....	10
Problem Statement.....	12
Purpose of the Study.....	13
Nature of the Study.....	15
Definitions.....	15
Assumptions.....	16
Limitations.....	17
Delimitations.....	17
Significance.....	17
Summary.....	18
Chapter 2: Review of Literature.....	19
Introduction.....	19
Literature Research Strategy.....	19
Social Media Use and Eating Concerns.....	20
Young Adults.....	20
Adolescents	26
Adolescent and Adult Females.....	29
Adolescent and Adult Males.....	35
App-Specific Studies.....	37
Facebook.....	37

THE LINK BETWEEN SOCIAL MEDIA AND DISORDERED EATING	5
Instagram.....	38
Twitter.....	40
Websites Containing Pro-Eating Disorder Content.....	42
Prevention of Eating Concerns and Disordered Eating in Young Adult Women.....	43
Conclusion.....	44
Chapter 3: Methodology.....	45
Introduction.....	45
Research Design.....	45
Study Design.....	48
Setting and Sample Size.....	50
Population.....	50
Recruitment.....	51
Data Collection Process.....	51
Instrumentation.....	51
Data Analysis Plan.....	52
Descriptive Statistics.....	52
Inferential Statistics.....	53
Threats to Validity.....	55
Ethical Procedures.....	55
Summary.....	56
Chapter 4: Anticipated Results	57
Characterization of Study Population.....	57
Research Question 1.....	59

Research Question 2.....	60
Research Question 3.....	61
Chapter 5: Discussion.....	62
Characterization of the Study Population.....	62
Interpretation of Results.....	62
Comparison to Other Studies.....	63
Strengths and Limitations.....	64
Suggestions for Future Studies.....	66
Conclusion.....	67
References.....	68

List of Appendixes

Appendix A.....73
Application for Institutional Review Board Form.....73

Appendix B.....82
Consent Form82

Appendix C.....85
Assent Form.....85

Appendix D.....89
Survey.....89

List of Tables

Table 1:	Research Questions and Variables.....	48
Table 2:	Description of Variables.....	53
Table 3:	Demographics of the Study Sample.....	58

List of Figures

Figure 1:	The Correlation Between Social Media Use and Severity of Disordered Eating Behavior Among Individuals Aged 14 to 18 years old.....	59
Figure 2:	The Difference in the Prevalence of Disordered Eating Behaviors Between Adolescent Boys Who Use Social Media Sites and Adolescent Girls Who Use Social Media Sites.....	60
Figure 3:	The Relationship Between Frequency of Social Media Use and Disordered Eating Behaviors Among Males and Females.....	61

Chapter 1: Introduction to the Study

It is no question that society today revolves around technology. We live in a time where virtually every aspect of our lives, from work to play, is tied to electronic devices. Although this constant connectivity offers excellent rewards, it also yields significant risk, especially for adolescents. Research conducted within the last 5 years has revealed the detrimental impact of social media on children's, adolescents', and young adults' mental health (Eijnden et al., 2018; Rahmawati et al., 2020). These young, impressionable individuals are vulnerable to increasing social comparison and peer pressure, which often result in increased self-doubt, anxiety, depression, and body image issues (Knoll et al., 2015). Furthermore, this overexposure to digital media is associated with eating concerns, disordered eating, and eating disorders (Sidani et al., 2016).

Background

Increased volume and frequency of social media use have been shown to damage children's, adolescents', and young adults' mental health (Eijnden et al., 2018; Rahmawati et al., 2020). Additionally, increased exposure to the content found on social networking sites is associated with heightened self-doubt, anxiety, depression, and body image issues (Knoll et al., 2015). Furthermore, due to this exposure, researchers have indicated a rise in eating concerns, disordered eating, and eating disorders in individuals who use social media (Sidani et al., 2017).

Evidence shows there is a correlation between social media use and eating disorders. A cross-sectional study observing nearly 2000 U.S. adults ages 19 to 32 years

old determined a significant positive overall linear association between social media use and eating concerns (Sidani et al., 2016). Additionally, participants with a higher volume and frequency of service showed a significantly more significant association of having eating concerns than those with less usage (Sidani et al., 2016). Studies including high school students show that higher scores on an appearance-related social media consciousness scale (i.e., almost always or always being focused on one's appearance on social media) were associated with more severe depression and disordered eating cases among subjects (Choukas-Bradley et al., 2020). Additionally, a study including males and females ages 11 to 18 years old determined that a higher frequency of social media use among participants resulted in greater body dissatisfaction among participants in the group (Vries et al., 2015). The authors concluded a causal relationship between the amount and frequency of social media use and body dissatisfaction among adolescents. Still, poor body image did not predict social media use (Vries et al., 2015). Far more studies examining the relationship between social media use and disordered eating among adolescent and young adult females were found when genders were analyzed independently. More frequent social media use among females was related to food restriction, manipulation, and preoccupation, which are elements of disordered eating (Aparicio-Martinez et al., 2019; Mclean et al., 2015).

In their cross-sectional study, Peat et al. (2014) found that there was a significant relationship between Internet access and perceived "fatness" among women, as those with access were 2.8 times more likely to report feeling "fat" versus those with no access. Additionally, those with access were found to be 4.8 times more likely to worry about a loss of control of eating (Peat et al., 2014). Studies that included only males, although

few among them, also had exciting findings on the examined relationship. An observational study of Middle Eastern male college students ages 17 to 33 years old showed a direct connection between media images, negative emotions, depressive symptoms, and emotional eating (Doumit et al., 2017). A study looking specifically at sexual minority men who are active social media and dating app users showed that image-centric social media apps, like Instagram, Snapchat, and Facebook, were significantly associated with body image issues and disordered eating (Griffiths et al., 2018).

As social networking sites continue to grow in popularity, the negative impacts mentioned above will also continue to grow along with them. After reviewing the literature, it became clear that more research needed to be done to determine if the relationship between social media use and disordered eating behaviors is present in adolescent males, and if so, if the relationship is the same in females. Contributing to the body of literature on this topic will benefit the health sciences community members, their patients and clients, and the general public.

Problem Statement

Overexposure to social media is associated with eating concerns, disordered eating, and eating disorders (Sidani et al., 2017). Many studies have included adolescents and young adult women (Ambwani et al., 2019; Aparicio-Martinez et al., 2019; McLean et al., 2015; Santarossa & Woodruff, 2017; Sidani et al., 2016; Vries et al., 2015). Very few studies have included adolescent and young adult men (Doumit et al., 2017; Griffiths et al., 2018). It is a common misconception that women are the only gender at risk for developing body, food, and self-esteem issues due to using social networking sites

(Carrillo, 2018; Gomes et al., 2019; Lavender et al., 2017). This belief system overlooks young boys and men, who are also at risk of developing adverse side effects.

Purpose of the Study

This study aims to determine if there is a correlation between frequency of social media use and disordered eating, if there is a difference in the prevalence of disordered eating among social media-using adolescent boys and girls, and if the relationship between frequency of social media use is the same for adolescent boys and girls. Additionally, this study may serve as a catalyst to develop school-based prevention programs that raises awareness on the potentially harmful effects of social media use and educate students, teachers, guardians, and practitioners on the issue.

Research Question 1

Is there a correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behavior, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls?

Hypotheses:

H₀: There is no correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls.

H_a: There is a correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating

behavior, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls.

Research Question 2

Is there a difference in the prevalence of disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), between adolescent boys who use social media sites (measured by the Social Networking Activity Intensity Scale [SNAIS]) and adolescent girls who use social media sites?

Hypotheses

H₀: There is no difference in the prevalence of disordered eating behaviors, measured by the EDE-QS, between adolescent boys who use social media sites (measured by the Social Networking Activity Intensity Scale [SNAIS]) and adolescent girls who use social media sites.

H_a: There is a difference in the prevalence of disordered eating behaviors, measured by the EDE-QS, between adolescent boys who use social media sites (measured by the Social Networking Activity Intensity Scale [SNAIS]) and adolescent girls who use social media sites.

Research Question 3

Is the relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), the same for adolescent boys and girls?

Hypotheses:

H₁: The relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), is not the same for adolescent boys and girls.

H₂: The relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), is the same for adolescent boys and girls.

Nature of the Study

Due to the sensitive nature of the study, the name of the high school will not be revealed. An email explaining the purpose of the study will be sent to the parents and students at a public high school in Euless, Texas. Parents of minors will be asked to consent to their child or children being included in the study. Additionally, minors will be asked to complete an assent form. Once permission is obtained, the participants will be emailed a SurveyMonkey link. The survey contains a unique code to maintain participants' anonymity, basic demographic questions, the Social Networking Activity Intensity Scale (SNAIS), and the Eating Disorder Examination Questionnaire – Short (EDE-QS). Descriptive and inferential statistics will be used to assess the findings.

Definitions

Adolescents: Defined as boys and girls who are between the ages of 14 and 18 years old. This includes individuals who chose to identify with a gender different from the one they were biologically assigned at birth.

Disordered eating: Behavior that does not fully meet the criteria for the diagnosis of an eating disorder but can be considered a subclinical form of an eating disorder. This often includes eating disorder-related symptoms, including fasting, food restriction, vomiting, binge eating, and purging (Wu et al., 2019).

Eating disorder: A mental health illness that negatively impacts and disturbs an individual's eating behaviors and related thoughts. The disease often involves a preoccupation with food and body image. Types of eating disorders include anorexia nervosa, bulimia nervosa binge eating disorder, avoid restrictive food intake disorder, other specified feeding and eating disorders, pica, and rumination disorder (Eating Disorders, 2016; Guarda, 2021).

Eating Disorder Examination Questionnaire – Short (EDE-QS): As seen in Appendix D; a 12-question survey that assesses eating disorder behaviors within the last 7 days for individuals ages 14 years and older. Higher scores indicate higher or more severe symptoms (Gideon et al., 2016; Prnjak et al., 2020).

Social Networking Activity Intensity Scale (SNAIS): As seen in Appendix D; a 14-item questionnaire measures the frequency, intensity, and duration of using several social media functions on several different types of social media platforms (Li et al., 2016).

Social media: Social Media is defined as websites or software programs used for social networking. This study will include Facebook, Twitter, Snapchat, Instagram, Pinterest, Tik Tok, YouTube, and VSCO.

Assumptions

There are a few assumptions to be made about this study. The first is that all participants can read and process the information and provide honest, truthful answers. Additionally, all participants have internet access to complete the survey.

Limitations

A notable limitation of the proposed study is the data collection method, as the self-reported data may increase the risk of user error. Additionally, the EDE-QS contains fewer questions compared to similar eating disorder questionnaires, resulting in a less thorough screening process. Furthermore, social media sites are highly variable from user to user, making it increasingly difficult to draw general conclusions about the impact of social media on a general population's eating behaviors. Finally, the cross-sectional study design is flawed, as it only gathers information from a single point in time and results in the inability to make a causal inference.

Delimitations

There are several delimitations to note. The first is the sample, as it includes one high school from one city in the U.S., which means that students from other high schools in the city, state, or region and those from rural areas will not be a part of the assessment. Additionally, the incentive fee, which has the benefit of potentially enticing more individuals to participate in the study, can also result in participants quickly completing the survey without taking the time to provide genuine, honest responses to the survey questions. Finally, while individuals younger or older than the proposed population may experience the adverse effects of social media use related to disordered eating, this study will include those experiences and perceptions of those between 14 to 18 years old.

Significance

If the previous relationship exists, this study can contribute to the current body of literature on this subject by revealing the potential adverse effects of social media on adolescents eating behaviors. Furthermore, the study can bring awareness to this under-researched population, and in turn, serve as a guide for health care professionals, especially dietitians, when caring for their patients, clients, and the public as a whole. Additionally, the results can help healthcare professionals better understand the unique issue occurring in society and better serve their communities. The findings can potentially serve as a catalyst for future studies on this topic and for school-based prevention programs to be developed to address and combat the adverse impact that social media use has on adolescents' and young adults' mental health.

Summary

An overexposure to digital media is associated with eating concerns, disordered eating, and eating disorders (Sidani et al., 2016). The proposed study aims to determine if there is a correlation between frequency of social media use and disordered eating, if there is a difference in the prevalence of disordered eating among social media-using adolescent boys and girls, and if the relationship between frequency of social media use is the same for adolescent boys and girls. The study will bring awareness to this issue and potentially pave the way for more extensive studies, projects, prevention, and intervention programs. A focus on this under-researched population will help health care practitioners, especially dietitians, better understand their patients, clients, and the public as a whole. The next chapter will review current literature available on the correlation between social media use and disordered eating among adolescents and young adults.

Chapter 2: Review of the Literature

It is no question that Western society today revolves around technology. We live in a time where virtually every aspect of our lives, from work to play, is tied to electronic devices. Although this constant connectivity offers excellent rewards, it also yields significant risks, especially for children. Scientific studies have revealed the detrimental impact that the high frequency of social media use has on children, adolescents, and young adults' mental health (Eijnden et al., 2018; Rahmawati et al., 2020). These young, impressionable individuals are vulnerable to increasing social comparison and peer pressure, which often result in increased self-doubt, anxiety, depression, and body image issues (Knoll et al., 2015).

Furthermore, this overexposure to social media is associated with eating concerns, disordered eating, and eating disorders (Sidani et al., 2017). Many studies have included adolescents and young adult women (Ambwani et al., 2019; Aparicio-Martinez et al., 2019; McLean et al., 2015; Santarossa & Woodruff, 2017; Sidani et al., 2016; Vries et al., 2015). However, very few studies to date have independently examined adolescent and young adult men (Doumit et al., 2017; Griffiths et al., 2018). It is a common misconception that women are the only gender at risk for developing body, food, and self-esteem issues due to using social networking sites. (Carrillo, 2018; Gomes et al., 2019; Lavender et al., 2017). This belief system overlooks young boys and men, who are

also at risk of developing adverse side effects. This review examines the available literature on social media use and disordered eating in general. Peer-reviewed, evidence-based research studies published within the last 10 years were selected from Mount Mary University's remote Haggerty Library. The following databases were selected: Science Direct, PubMed, ProQuest, Ebscohost, Nursing & Allied Health Database, and Sage Journals. Key search phrases included "social media use associated with the development of eating disorders and disordered eating," "relationship between social media use and eating concerns," "the association between social media use and eating concerns in adolescents," and "social media use and disordered eating in adolescent boys."

Social Media Use and Eating Concerns

This section will include the current literature on social media use and eating concerns (including eating disorder behaviors, disordered eating, body image issues, and self-esteem issues) in young adults, adolescents, adolescent and adult females, and adolescent and adult males.

Young Adults

One study of 1,765 participants in the U.S. explored the relationship between social media use and eating concerns among young adult men and women between 19 to 32 (Sidani et al., 2016). The authors considered both volume and frequency when examining participants' social media use. The authors used the Sick, Control, One, Fat, Food Questionnaire and the Eating Disorder Screening to assess eating concerns. Researchers reported a significant positive overall linear association between social media use and eating concerns. Participants with a higher volume and frequency of use showed a significantly higher incidence of eating concerns than those with less usage.

The study was cross-sectional, which takes data from a “snapshot” in time, a relatively more straightforward study design to carry out than case-controlled studies (Sidani et al., 2016). Because of this, cross-sectional studies limit the ability to make causal inferences. Additionally, all data collected for the study was self-reported, which increases the chance of researchers receiving false information. Finally, the study included a group of participants at greater risk of experiencing the detrimental effects of social media than other age groups. However, results cannot be generalized to individuals outside of the designated age range. Despite these limitations, these findings provide a foundation for future studies within the same area.

A similar article, by Santarossa & Woodruff (2017) explored the association between social media use (both frequency and level of dependency), social media “friends,” and other social media activities and body image (B.I.), self-esteem (S.E.), an eating disorder (E.D.) behaviors. One hundred and forty-seven 18 to 27-year-olds participated in the study, with 55% being female and 45% male. Participants were asked to complete various body image, self-esteem, and eating attitude-focused scales and tests. Independent variables included problematic social media use (i.e., degree of dependency), daily use, number of followers, number following, activity, and photographs. Dependent variables included summarized z-scores of the comprehensive questionnaires, one for each main category of B.I., S.E., and E.D. Regression analysis showed that problematic use and gender were independent variables, and gender was predictive for B.I., S.E., and E.D.

The study showed that the problematic behaviors (i.e., greater frequency, greater dependency on social media sites) were directly tied to B.I., S.E., and E.D. symptoms.

More specifically, this relationship resulted in a significant link between inappropriate actions, lower B.I. and S.E., and higher E.D. behaviors (Santarossa & Woodruff, 2017). Additionally, higher social media use was related to significantly higher E.D. behaviors. Although this study was thorough, there were several flaws. For one, the study included a relatively small sample study, where a large percent were between the ages of 18 to 19 years old (85%), and a large percentage (85%) were Caucasian. Similar studies with a larger, more diverse sample size will be more beneficial as more research is needed on specific social media apps' impact on B.I., S.E., and E.D.s.

Vries et al. (2015) aimed to learn more about the causal relationship between social media use and body dissatisfaction in adolescents. The sample study included 604 11 to 18-year-old males and females who completed a two-wave panel survey. The first wave was conducted over 3 months, and the second wave 1 month the following year. The authors measured social media app usage, peer appearance-related feedback, body dissatisfaction, self-reported BMI, parental monitoring, pubertal status, ethnicity, and socioeconomic status (Vries et al., 2015). The authors proposed that appearance-related feedback, often given and received on social media sites, puts pressure on adolescents to fit within an unattainable mold. The first wave showed that female participants reported a higher frequency of social media use, peer appearance-related feedback, and more dissatisfaction with their body image than their male counterparts (Vries et al., 2015). However, the authors also found that the effect of peer-appearance-related feedback on body dissatisfaction was not stronger among girls than among boys.

Additionally, the second wave of data showed that the higher the frequency of social media use, the greater body dissatisfaction among participants (Vries et al., 2015).

Furthermore, social media use resulted in greater amounts of peer appearance-related feedback. However, this feedback did not result in body dissatisfaction. The authors concluded that there is a causal relationship between the amount and frequency of social media use and body dissatisfaction among adolescents, but poor body image did not predict social media use.

Moreover, boys were found to be negatively impacted just as much as girls. Despite the significant findings of the study, there were some limitations. Due to its two-wave panel design, the study lacks the strength of an experimental design. Additionally, the measurement of social media site use could be improved by examining the impact of using multiple sites in a given period instead of measuring self-reported usage.

A similar study examined young adults and social media use; however, it dove deeper into a specific trend found on social media, known as #cleaneating (Ambwani et al., 2019). “Clean eating,” a term frequently promoted on social networking sites, is loosely defined as a rigid method of following an uber “healthy” diet typically full of fruits, vegetables, and whole grains and low in fat and sugar (Staudacher & Harer, 2018). Interestingly enough, the term “clean eating” is not explicitly defined in the scientific literature but is widely used in the social media space and is often deemed a diet that includes local, non-processed, organic, plant-based, and home-cooked foods. Because of this, researchers aimed to examine further what “clean eating” means to their target audience, people's attitudes towards the “clean” eating behaviors, and how those behaviors related to eating disorder symptoms. The study included 148 undergraduate students (including cisgender men and women) from a small U.S. liberal arts college. Measures included an open-ended question about what “clean eating” means to them, a

body image questionnaire, a weight bias scale (measuring the internalization of negative attitudes toward larger bodies), and an eating disorder questionnaire.

In response to the open-ended questions, most participants (91%) described “clean eating” as a positive eating behavior, and 46% noted the characteristics of including “nutritious” foods in one's diet, with many noting that such a diet includes eating more organic fruits, vegetables, and whole grains and fewer sugars and fats. 49% mentioned restricting “processed foods...typically cutting out empty calories, processed sugars, saturated fats” (Ambwani et al., 2019). The overall perception of healthiness, cleanliness, and willingness to adopt a particular diet varied among participants. Results from correlation analyses indicated positive associations among perceived healthiness of five popular “clean” diets (alkaline, vegan, gluten-free, meal substitution, and a “new” balanced diet), perceived “cleanliness” of the diets, and willingness to adopt the five diets with Orthorexia Nervosa (ON) symptoms, Eating disorder (E.D.) symptoms, and with overweight preoccupation. Additionally, among study subjects, a significant correlation was found between perceived healthiness and weight bias, or the negative attitudes towards larger-bodied individuals.

Overall, this study suggests that young adults have an extraordinarily varied but positive attitude towards “clean eating,” with many participants attributing willingness to try a “clean” diet with the desire to be healthier, lose weight, or “feel in control of their diet.” The desire to lose weight or feel in control is also associated with E.D. psychopathology (Ambwani et al., 2019). E.D.s and disordered eating are strongly linked to dieting; therefore, there must be a well-understood universal definition and evidence-based literature on “clean eating” so that healthcare professionals can better serve their

patients, clients, and community as a whole. There were other significant limitations to the study as well. Because of the lack of an evidence-based clear definition and explanation regarding the “clean eating” movement, the authors had to rely on social media resources and anecdotal information to gather “clean eating” data, which reduces the study's credibility. Performing more thorough social media analyses, tracking internet trends, and conducting a more in-depth assessment of the relationship between “clean eating” and ON will significantly contribute to this body of research.

Tran et al. (2019) also explored the impact of social networking sites on young adults; however, they specifically analyzed the relationship between dating app use and unhealthy weight control behaviors (UWCBs). This cross-sectional study included 1769 U.S. adults ages 18 to 65 who completed online surveys assessing the described relationship. The self-reported data included information about subjects' frequency of dating apps within the past thirty days and engagement in six UWCBs (vomiting, laxative use, fasting, diet pill use, muscle building supplement use, and use of anabolic steroids) in the past 12 months. Researchers included multivariate logistic regression models, controlling for sex, race/ethnicity, income, age, marital status, and sexual orientation.

Results showed that dating app users had significantly greater odds of practicing UWCBs than non-users (Tran et al., 2019). More specifically, African Americans were shown to have greater odds of engaging in all six UWCBs than Caucasian participants. Also, there was no significant difference found between varying sexual orientations and the likelihood of developing UWCBs. A higher percentage of men (16%) than women (9%) reported vomiting for weight control. Additionally, more men reported using diet pills, fasting, anabolic steroids, and muscle-building supplements compared to women.

Limitations included the cross-sectional design, and therefore, its inability to infer causal relationships, as well as the reliance on self-reported data.

Additionally, the logistic regression models did not control for mental health disorders and diseases or self-reported self-esteem and body image reports, which could have been valuable information to consider. Despite these flaws, the study results demonstrate the potentially harmful effects that dating app usage can have on adults. The study also contributes to the current body of research that claims that, although contrary to popular belief, men are at risk of developing disordered eating behaviors from social media use.

In summary, the available data on adult social media use reveals the potential harm that can result from overexposure and increased frequency of use of such networking sites (Ambwani et al., 2019; Santarossa & Woodruff, 2017; Sidani et al., 2016; Tran et al., 2019; Vries et al., 2015). All of the studies mentioned above explore varying elements within the social media space, contributing to current literature on the subject, while also pointing out flaws within the social media space and society as a whole. Despite this, there is still more research to be done on this subject; however, the discoveries made thus far are note-worthy.

Adolescents

Choukas-Bradley et al. (2020) explored the adverse effects of social media use on adolescent males' and females' validation and development. Researchers introduced the appearance-related social media consciousness (ASMC) scale and determined its ability to measure varying levels of body image, disordered eating, and depressive symptoms. ASMC is defined as "the extent to which individuals' thoughts and behaviors reflect

ongoing awareness of whether they might look attractive to a social media audience” (Choukas-Bradley et al., 2020). Three studies were a part of the research project. The first included a finalized 13-item questionnaire that reflected ASMC. These items included various theories, scales, and previous studies related to self-view on appearance. Two focus groups were held at a high school and one in a middle school setting. The second study consisted of 1227 U.S. public-school-based participants in the 9th through 12th grades completing the ASMC scale.

Additionally, researchers collected all necessary demographic information (gender, age, race/ethnicity, free or reduced-price lunch). The third study explored the reliability of the ASMC scale completed by the study subjects. Findings show that the scale reflected all concepts, there was a firm consistency within the sample, and analysis showed it to be significantly reliable.

Results show that mean levels of ASMC were higher for girls than boys, meaning that the female subjects were experiencing adverse side effects (i.e., having poor body image after using social media and being focused on how they appear online) more than the male subjects. (Choukas-Bradley et al., 2020). Additionally, there was a significant relationship between the score on ASMC and disordered eating in girls, while the relationship was found to be insignificant for boys. However, ASMC was shown to result in adverse mental health outcomes in both genders. Higher scores on the ASMC scale (i.e., almost always or always focused on one’s appearance on social media) were associated with more severe depression and disordered eating cases.

Despite the results, there were some limitations to the study. Because of the study design, no inference can be made regarding the long-term impact of ASMC on

adolescents (Choukas-Bradley et al., 2020). Additionally, all data were self-reported, resulting in possible inaccurate reporting, as mentioned in previous summaries. Despite these limitations, these results contribute to the current literature on the negative impact of various social media behaviors on young individuals.

Kaewpradub et al. (2017) also examined media influence on adolescents. However, they took a broader approach to the relationship between internet usage, body image, and eating behaviors in study subjects. Six hundred and two male and female 7th to 12th-grade students participated in the study. Students were selected by the use of simple random sampling from six secondary schools in Bangkok. Various questionnaires were used, including those that study internet and mainstream media use behavior, body-esteem, drive for muscularity, self-esteem, eating attitudes, and behaviors that increase the risk of obesity.

A majority (60.3%) of participants were female, and the average age was 15.7 years old. Results showed that, on average, male subjects spent significantly more time using media compared to their female counterparts (Kaewpradub et al., 2017). However, the female participants were shown to be spending significantly more time viewing body image and eating behavior-related media. Additionally, senior high school students were significantly more responsive to body image and eating behavior-related content than junior high school students. The Nutrition Computation Program was also used in the study, which digitized the populations aged 1 day up to 19 years and categorized results on nutrition status based on weight for age and weight for height at three levels: below standard, standard, and above standard norms for Thai children. The results from the program show that there was no significant difference between genders and their risk of

developing an eating disorder. However, junior high school female subjects showed significantly more purging, excessive exercise, and weight loss pills and supplements than other groups.

Moreover, the internet and social media use were shown to positively correlate with the risk of developing disordered eating or eating disorder behaviors (Kaewpradub et al., 2017). However, there are some limitations to note. First, as with several other studies described in this literature review, the cross-sectional design prevents making causal inferences.

Additionally, researchers did not test the questionnaires' validity, resulting in reports of false data. The sample consisted of students from middle-upper class families, limiting the ability to translate findings to a broader demographic. Also, researchers did not account for and record other behavioral factors, such as anxiety or depression, that could have impacted the results overall. Despite these flaws, this study highlighted the potential adverse effects of the internet and social media use on male and female adolescents.

Adolescent and Adult Females

McLean et al. (2015) explored relationship-specific social media activities, such as taking "selfies," and their impact on adolescent girls' body image. One hundred and one 7th grade girls based in Melbourne, Australia, were included in the cross-sectional study design. Researchers collected information about the level and frequency of media exposure using a validated, reliable tool. Frequency of taking self-images, frequency of self-image sharing, photo investment, photo editing, body dissatisfaction, dietary restraint, and internalization of the thin ideal were included.

On average, participants reported spending approximately 5 hours a day on digital media, most spending time on text messages, emails, and social media apps, in that order (McClean et al., 2015). The result showed that more frequent social media users, specifically those who frequently share “selfies,” reported higher body dissatisfaction rates, restrictive dieting, and internalization of the thin ideal than those who do not share self-images. Additionally, those who reported a high frequency of editing and manipulating self-images had a high level of body image and eating concerns. The authors concluded that a higher frequency of use (including self-image taking, sharing, and manipulating) resulted in greater levels of body image and eating concerns. These results hone in on the dangers of specific app-related activities for young, impressionable teens.

There were some limitations to the study. First, the sample consisted of a relatively small group from one grade, which does not transfer to a wide variety of individuals outside of the study (McClean et al., 2015). Also, the cross-sectional design fails to analyze subjects’ behavior over a significant period, which reduces its ability to draw sound conclusions on the direction of the study’s relationships. Despite these flaws, the study highlights the importance of considering social media activities when addressing adolescent girls' eating concerns.

A more comprehensive study examined the potential association between sociocultural factors (i.e., social media) and disordered eating in female college students (Aparicio-Martinez et al., 2019). The study aimed to determine whether there is a relationship between disordered eating behaviors, social media addiction, and other biological factors. Researchers studied females ages 18 to 25 years old in phase one of

the cross-sectional study. The participants completed an in-person, 1-month-long survey at the University of Cordoba in 2018. After following non-probability convenience sampling procedures, a total of 168 students participated in the survey. Primary demographic and anthropometric data were not included, while more behavioral and sociocultural measures were collected. Tests and questionnaires were completed on disordered eating behaviors (EAT-26), body satisfaction, self-esteem, social network addiction, and testosterone levels. Exclusion criteria included those who had received a diagnosis of an emotional disorder or addiction and those who did not have an account on a social media platform.

The final sample included 168 females aged 21 to 22 years old, of which 96.7% were Caucasian. Results show that subjects had a 3 to 4 body image range, meaning they were within “normal” weight (Aparicio-Martinez et al., 2019). Data showed that subjects viewed themselves as a larger, “fatter” version of themselves than the desired body image. Moreover, close to 93% of women reported a desire to change at least three zones of their body using at least two methods, including physical activity, diet, surgery, and beauty products in the order of popularity. The EAT-26 results showed that most women included in the study had a medium probability of having disordered eating, and data showed a relationship between low body satisfaction numbers and high disordered eating behaviors figures.

Moreover, 40.81% of the women who scored high numbers (greater than 20) from the EAT-26 test reported having oral food control, 38.77% had bulimia and food preoccupation, and 20.5% reported dieting in some capacity (Aparicio-Martinez et al., 2019). Additionally, women who reported curvy body type also had higher scores in the

EAT-26 test and reports of desire to use more methods to modify the current body image. The testosterone tests revealed a positive relationship between lower intrauterine testosterone levels and a “fatter” body image. Moreover, a probabilistic model determined that 42.9% of the study's subjects had disordered eating attitudes based on their high reports from the social media addiction test, body image, body dissatisfaction, and desire of having a thinner body.

In conclusion, high body dissatisfaction reports are related to an increased desire to change body image (i.e., achieve a thinner body), mainly through dieting (Aparicio-Martinez et al., 2019). Additionally, the study results showed that sociocultural factors, including social media usage, may play a critical role in disordered eating attitudes in young adults. Researchers concluded that although disordered eating behaviors may result from social media use, other factors, such as hormones, self-esteem, and overall body image, also play a role, which are vital factors to consider when examining the relationship between sociocultural factors (i.e., social media) and disordered eating in female college students.

Despite these findings, there were a few limitations to the study. Because the data was self-reported, there is a risk of bias and invalid data. Additionally, as stated above, the sample was predominantly Caucasian women aged 21 to 22, which decreases the potential of the results to speak to a more diverse pool (Aparicio-Martinez et al., 2019). This mostly homogenous group likely resulted from the lack of inclusion factors, such as failure in collecting various cultural factors. Despite these limitations, this study contributes to the body of research on this subject while also gathering unique data, such as hormonal factors, that could shed light on this issue.

A study of China's youth conducted by Peat et al. (2014) examined the association between internet and television access and disordered eating. Westernization of China and increased digital media use have led to behavior changes resulting in disordered eating or eating disorders. The researchers aimed to explore this relationship to understand better the impact these resources have on China's youth. Data from the 2009 China Health and Nutrition Survey (CHNS), which explored the relationship between socioeconomic changes, eating behaviors, and nutritional status, was used to conduct the study. Researchers analyzed two populations within the CHNS database: 12 to 17-year-old girls and 18 to 35 years old women. Age and media use, eating disorder symptoms, and height and weight were collected from participants at the time of the interview. A total of 233 adolescent girls and 830 young adult women participated. Approximately 47% of adolescents and 41% of adults reported having access to the internet. Adolescents reported watching T.V. for about one and a half hours a day, while adults reported two hours. There were no significant associations found between media use and eating disorder symptoms among the adolescent group. However, there was a significant relationship between Internet access and perceived "fatness" among adults. Those with access were 2.8 times more likely to report feeling "fat" than those without access. Additionally, those with access were found to be 4.8 times more likely to worry about a loss of control of eating (Peat et al., 2014).

Although the study shines a light on a critical issue among young Chinese women, some limitations are worth noting. First, the cross-sectional design prevents observing social media use data impact over time (Peat et al., 2014). Because of this, causation cannot be inferred. Additionally, the specific content found on internet sites and

television was not examined; therefore it is challenging to determine what specifically resulted in increased risk for developing eating disorders. Furthermore, it is unclear whether Internet access is the sole cause of eating disorder symptoms, as disordered eating itself may drive media use. Despite these flaws, the study's results show the media's influence on young women's self-image. Due to these subjective feelings, the results suggest that participants may be more inclined to restrict foods and develop disordered eating behaviors due to mainstream media exposure.

Quick and Byrd-Bredbenner (2013) had a similar idea by exploring the relationship between disordered eating and mainstream media; however, they specifically looked at media influencers' content and examined its impact on college women. The cross-sectional study consisted of a large (n=1445), relatively diverse (58% White, 21% Asian, 11% Hispanic, 11% Black) group of women ages 18 to 26 years old. Subjects were recruited via an online survey about "their eating practices." Various questionnaires about eating disorder symptoms, emotional eating, body image, body distortion, body checking, self-worth, self-esteem, and depression and anxiety determined levels of disordered eating. Anthropometric and demographic data were self-reported.

Results showed that Black women had significantly higher BMI than other groups (Quick & Byrd-Bredbenner, 2013). Additionally, they were significantly less likely to fall victim to media-related comparison, felt less pressure to "look" a certain way, and had less awareness of the media-driven societal norms. Asian women had positive Body Image Distortion scores and significantly lower levels of self-esteem compared to their groups. On the other hand, Black women were significantly less likely to perform "body checks" by pinching fat or avoiding clothes that accentuate their figure. These results are

likely related to Black women's cultural upbringing, which increased resilience in combating societal appearance norms. However, there are some limitations worth noting. First, due to the cross-sectional design's nature, the results fail to show the relationships over a long period. Also, participants were asked to complete nearly ten different questionnaires and scales, which can result in instrument fatigue and possibly skewing results. Additionally, some of the data collected were self-reported, which could be faulty. Regardless of these flaws, this study showed the distinct differences among racial and ethnic groups in the setting of media, body image, and disordered eating.

Adolescent and Adult Males

Doumit et al. (2017) studied 260 Middle-eastern male college students ranging in age from 17 to 33 years to explore depressive symptomatology in the setting of disordered eating (D.E.) and media influence (MI). Subjects completed a survey, including age, academic program, estimated height and weight, and physical activity level. Also, they completed a series of questionnaires and rating scales related to body image, eating behaviors, media influence, depressive symptomatology.

Depressive symptomatology was found to be associated with restrained and emotional eating strategies to alter body weight (increase and decrease), increase muscle mass, and all subscales of media use (Doumit et al., 2017). Restrained eating was associated with body image dissatisfaction, decreased body weight, and increased muscle mass. The strongest correlations were found between depressive symptomatology and media pressure and restrained eating and media pressure. Media images, including social media, portraying conventional idealistic bodies appeared to impact the subjects

significantly. There was a direct connection between media images, negative emotions, depressive symptoms, and emotional eating.

In the face of these results, there were limitations. Due to the nature of the study design, causation cannot be inferred. Additionally, all data included in the study were self-reported, containing false information (Doumit et al., 2017). Despite these flaws, this study addressed the research gap for Middle-eastern male college students and shined a light on prevalent issues in our society.

Griffiths et al. (2018) focused on males; however, they specifically studied sexual minority men active social media and dating app users. Two thousand seven hundred thirty-three men 18 years and older from Australia and New Zealand were included in the study (Griffiths et al., 2018). The study subjects were recruited from advertisements displayed on a popular dating application. They were asked standard demographic questions (i.e., age and gender), as well as more personal questions, like sexual orientation, relationship status, social media, and dating app use, body image, eating behaviors, and use of performance-enhancing drugs. The Male Body Attitudes Scale-Revised (MBAS-R) and The Eating Disorder Examination Questionnaire Short (EDE-QS) were used to assess participants' body image ratings and eating behaviors.

Image-centric social media apps, like Instagram, Snapchat, and Facebook, were significantly associated with body image issues and disordered eating (Griffiths et al., 2018). Additionally, a positive relationship was found between social media and dating app use with body dissatisfaction, disordered eating, and thoughts of using anabolic steroids. Overall, the study revealed an association between higher frequency of social media use and significant disordered eating behaviors and body image concerns.

App-Specific Studies

This section will include the current literature on Facebook, Instagram, and Twitter usage and their relation to eating concerns (including eating disorder behaviors, disordered eating, body image issues, and self-esteem issues) in young adults, adolescents, adolescent and adult females, and adolescent and adult males.

Facebook

Mabe et al. (2014) examined the association between Facebook use and eating disorder risk amongst female college students. Two study designs, using two different groups of participants, were used in the study. The first included 960 participants who completed surveys related to Facebook use and eating concerns. The second, including 84 randomly assigned women who were instructed to use Facebook or an alternate site for 20 minutes, aimed to determine whether Facebook use is associated with eating disorder risk factors. Results revealed that more frequent social networking sites were associated with increased disordered eating in surveyed participants.

This study design sets an excellent foundation for newer, more improved studies to come in the future. Regardless of what platform or how recent the data is, the consensus is that overuse of social media may result in a host of adverse side effects, such as disordered eating (Mabe et al., 2014). The apparent issue with the study is that it contains outdated information. Social media is an ever-growing field that adapts and evolves practically every day. Therefore, a study on Facebook from 2014, which would typically be relatively “new” data, is nearly outdated now in 2020. Despite this flaw, the study provides a template for future studies examining the topic.

Instagram

A similar study exploring social media's influence on eating behaviors explores an image-centric app, Instagram, and its correlation with Orthorexia Nervosa (Turner & Lefevre, 2017). Orthorexia Nervosa (ON), although not included in the Diagnostic and Statistical Manual of Mental Disorders (DSM), is defined as an unhealthy obsession with "healthy" food. In contrast with patients with anorexia nervosa, individuals with ON are preoccupied with the quality of food. Participants for the study were recruited via free advertisements on Instagram, Facebook, Twitter, and various health and wellness-focused blogs. The final sample included 680 females ages 18 to 75 years old, with an average BMI of 22.14. Study subjects were asked about their social media behaviors, including the type of app(s) used, frequency and duration of use, dietary habits, demographics, and orthorexia symptoms (using the ORTO-15 questionnaire).

Instagram was shown to be the most popular app used amongst participants (Turner & Lefevre, 2017). A majority (80%) of Instagram users ranked food as the first or second most frequent image appearing on the app's feed. For the 90.6% of participants who met ON criteria, there was no correlation between ORTO-15 scores and the number of food types eaten, the number of social media sites used, age, or BMI. However, a significant association between ON symptoms and Instagram use was found. Additionally, the greater frequency of use was associated with a greater likelihood of experiencing ON. However, there were some limitations to the study. First, the study included a small sample that is not representative of the general population. Next, much of the data was self-reported, which certainly has its flaws. Finally, the survey was titled "health habits of social media," which could have attracted a particular group of people

interested in health and wellness. Despite these flaws, this study contributes to the body of research on the potential adverse effects of image-centric social media use in female adults and shining light on a less common behavioral health issue.

Pilgrim & Bohnet-Joschko (2019) also explored the characteristics of the Instagram app but instead looked at the impact that social influencers have on minors. The non-experimental, cross-sectional study (including quantitative and qualitative methods) examined non-campaign-driven health communication on diet and exercise via influencers based in Germany. Researchers relied on an online digital research database, InfluencerDB, which uses the official Instagram Application Programming Interface and includes every account globally with 15,000 followers. The hashtags gym, fit, fitness, sport, nutrition, train, and food were identified as essential words and searched various influential accounts. The qualitative analysis sample consisted of the most recent (5-40 weeks) posts from fifty accounts with 100,000 followers or more.

Results showed that most (84%) of diet, nutrition, and physical activity-related content was posted and shared by female-led accounts (Pilgrim & Bohnet-Joschko, 2019). Regardless of which key topic was discussed, almost 90% of the data showed influencers exposing at least one body part, with 90% of them showing evident musculature in the arm area and 66.7% showing defined abdominals. Promotional advertisements and posts were a vital component of the studied subjects. A total of 71% of the accounts promoted at least one brand, with 88% of those brands being related to diet and exercise. Results also showed the power and influence that the subjects have over their followers. Data reveals that their followers view them as role models and a

source of motivation, inspiration, personal comparison, and recognition in a personal and moderately intense fashion.

Despite these findings, there are some limitations to note. First, various abbreviations and slang terms could have misinterpreted the analyzed data (Pilgrim & Bohnet-Joschko, 2019). Also, there was no formal assessment conducted to determine the legitimacy of the influencer accounts. Some accounts, recognizing the benefits of acquiring a high volume of followers, choose to purchase “ghost” followers from a third-party company as a means of gaining recognition in the digital space. This element, of course, could impact the validity of the results. In conclusion, this study demonstrated the significant influence digital figures have on their audience members’ thoughts on diet and exercise.

Twitter

Harris et al. (2018) explored specific hashtags found on Twitter and their association with eating disorders. The hashtags #thinspo and #fitspo are often used within the fitness, wellness, diet culture, and eating disorder community. The researchers aimed to understand the types of individuals who write, follow, and engage with such content and examine additional content related to such topics. They identified 1035 tweets using the #thinspo and #fitspo hashtags. Researchers used constructed week sampling over a two-week time frame to gather 28,941 tweets, with 2,067 of them including the noted hashtags. One year later, retweets, likes, and replies were assessed to determine overall content engagement. As a result, 692 tweets using #thinspo and 343 tweets using the #fitspo hashtags were examined in the study. All tweets went through a coding process. Ten text topic codes were chosen: eating less, eating healthy, exercise, gaining strength,

losing weight, bingeing, purging, the desire for a body type or body part characteristic, mention of a type of eating disorder, and mentions of a medication. Additionally, researchers used descriptive statistics to compare the content related to each hashtag. Of the sample of over one thousand tweets, 61.4% were related to body image, fitness, food, dieting, or eating disorders (Harris et al., 2018). More than half of #fitspo tweets were promotional. In contrast, most (95%) of #thinspo tweets contained an attached image or video of a body or body part, with 75.5% of those containing an extremely thin or malnourished individual. #fitspo tweets were associated with exercise, strength, healthy eating, restrictive eating, and medications. In contrast, #thinspo was associated with more extreme topics, such as losing weight, desiring a specific body type, and eating disorder behaviors, including bingeing, purging, and restricting.

Additionally, #fitspo tweets were more likely to be sent from fitness-focused organizations and businesses (Harris et al., 2018). In contrast, #thinspo tweets were linked to individual user accounts apart from a community that idolizes thin bodies. Therefore, this study shows the prevalence of diet, exercise, and disordered eating behavior-related content available on Twitter. This content has been shown to normalize and increase disordered eating behaviors (Ghaznavi & Taylor, 2015; Salomon, 2017).

Although this study illustrated key issues occurring within the social media space, some limitations are to note. First, the study only included the abbreviated versions of the popular hashtags, which likely limited the potential subset of data (Harris et al., 2018). Also, there is a chance that the data collected could have missed a large sum of tweets containing the two key hashtags. Despite these flaws, this study explored the unique

characteristics of a wildly popular app and highlighted the potential adverse effects that it could have on its users.

Websites Containing Pro-Eating Disorder Content

Peebles et al. (2012) focused on more specific content found on social media sites. The authors explored the associations between the consumption of pro-eating disorder content found on websites, eating concerns, and quality of life using scores from the EDE-Q and Eating Disorder Quality of Life (EDQOL). The study's final analysis included slightly fewer than 1300 participants, predominately women. The authors concluded that pro-eating disorder website usage remained a significant predictor of the EDE-Q score, which assesses the degree of disordered eating and thoughts. Moreover, the greater the amount of usage, the higher EDE-Q global (4.89 vs. 4.56 for medium and 4.0 for light usage, $P < .001$) and EDQOL total scores (1.64 vs. 1.45 for medium and 1.25 for light usage, $P < .001$). Results from the study also included that the reported age of pro-E.D. website usage in participants was higher than other E.D. behaviors, alluding to the fact that individuals with eating disorders may not explore such content until E.D. behaviors and tendencies have been established.

The study highlights the severity and danger of pro-E.D. content displayed on popular, easy-to-access websites (Peebles et al., 2012). Although some may argue that these sites support those struggling, the study's findings show the opposite to be true. However, several limitations reduce its credibility. First, causation cannot be inferred because it is a cross-sectional study. Second, there is a risk of recall bias due to participants being asked about past behaviors. Third, because the surveys were completed

online, there is no way to verify the answers. Finally, the survey did not have an access control feature; therefore, participants could have submitted the form more than once.

Prevention of Eating Concerns and Disordered Eating in Young Adult Women

The first prevention-focused study explored various prevention programs for disordered eating in at-risk young-adult women (Wilksch et al., 2017). The study used two online programs, Media Smart-Targeted (MS-T) and Student Bodies (S.B.). Results showed that 66% of participants randomized to MS-T or S.B. accessed the intervention, with 78% completing measures following baseline. MS-T showed a significantly lower Eating Disorder Examination-Questionnaire (EDE-Q) score than controls at 12-month follow-up and higher quality of life as shown by the Secondary intent-to-treat.

These findings give promise to future, practice-based prevention programs for disordered eating (Wilksch et al., 2017). The study's strengths included the large, community-based sample group of 575 women ages 18 to 25. The study's limitations were that the data was self-reported, and the follow-up period was shorter than other prevention trials. Despite these flaws, this study can serve as a framework for future studies within the field. A preventive program, such as the one included in the study, can achieve more significant results.

Mclean et al. (2017) aimed to explore social media-centric interventions in adolescent girls. One hundred one adolescent girls based in Melbourne, Australia, participated in the study. Self-reported body image, overvaluation of shape and weight, internalization of the thin ideal, fear of fat, and media literacy variables were collected. The intervention, The Boost Body Confidence and Social Media Savvy, included three 50-minute lessons, which aimed to increase social media literacy so that participants

would better understand the process of photo editing and manipulation, build resistance to peer comparison, and reduce the focus on one's appearance on social media apps.

These study results show that the intervention group had significant self-esteem improvements, decreased dietary restraint, and increased realism skepticism (McLean et al., 2017). Therefore, this shows that implementing social media literacy-based programs in middle schools can build resilience in adolescent girls, making them less likely to fall victim to comparison and self-hatred from social media app usage. In turn, it is hoped these intervention programs can help reduce the risk of adolescent girls developing eating disorder behaviors.

Conclusion

The wide variety of studies included in this literature review summarize the current research on social media use and disordered eating among adolescents and young adults. However, most were cross-sectional studies, which fail to show the impact of media usage over time. Additionally, sample sizes were adequate at best. Because of these flaws, there is a need for longitudinal studies including more robust sample sizes to be conducted on this topic. More specifically, there needs to be a focus on the impact of social media use and eating concerns in adolescent boys, as there is a clear gap in the literature. Males are not exempt from experiencing adverse effects from social media use, as Sidani et al. (2016); Santarossa & Woodruff (2017); Vries et al. (2015); Choukas-Bradley et al. (2020); Doumit et al. (2017); Griffiths et al. (2018) demonstrated in their peer-reviewed studies. Ideally, this research focused on an under-researched population will help health care practitioners, especially dietitians, better understand their patients, clients, and the public as a whole.

Chapter 3: Methodology

Introduction

Overexposure to social media is associated with eating concerns, disordered eating, and eating disorders (Sidani et al., 2017). Many studies relating to these factors have included only adolescents and young adult women (Ambwani et al., 2019; Aparicio-Martinez et al., 2019; McLean et al., 2015; Santarossa & Woodruff, 2017; Sidani et al., 2016; Vries et al., 2015). So far, very few studies have independently examined adolescent and young adult men (Doumit et al., 2017; Griffiths et al., 2018). It is a common misconception that women are the only gender at risk for developing body, food, and self-esteem issues due to using social networking sites (Carrillo, 2018; Gomes et al., 2019; Lavender et al., 2017). Because of this gap in the research, this study will examine the relationship between social media use and disordered eating in adolescent boys compared to adolescent girls. Males are not exempt from experiencing adverse effects from social media use, as Choukas-Bradley et al., 2020; Doumit et al., 2017; Griffiths et al., 2018 demonstrated in their peer-reviewed studies. The purpose of the study is to determine if there is a correlation between frequency of social media use and disordered eating, if there is a difference in the prevalence of disordered eating among social media-using adolescent boys and girls, and if the relationship between frequency of social media use is the same for adolescent boys and girls.

Research Design

In order to answer the research questions and hypotheses, an observational, cross-sectional study will be conducted on a group of 14-18-year-old male and female high school students.

Research Question 1

Is there a correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behavior, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls?

Hypotheses:

H₀: There is no correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls.

H₁: There is a correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behavior, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls.

Research Question 2

Is there a difference in the prevalence of disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), between adolescent boys who use social media sites (measured by the Social Networking Activity Intensity Scale [SNAIS]) and adolescent girls who use social media sites?

Hypotheses

H₀: There is no difference in the prevalence of disordered eating behaviors, measured by the EDE-QS, between adolescent boys who use social media sites

(measured by the Social Networking Activity Intensity Scale (SNAIS)) and adolescent girls who use social media sites.

H₁: There is a difference in the prevalence of disordered eating behaviors, measured by the EDE-QS, between adolescent boys who use social media sites (measured by the Social Networking Activity Intensity Scale [SNAIS]) compared to adolescent girls who use social media sites.

Research Question 3

Is the relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), the same for adolescent boys and girls?

Hypotheses:

H₁: The relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), is not the same for adolescent boys and girls.

H₂: The relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), is the same for adolescent boys and girls.

Table 1*Research questions and variables*

Research Question	Independent	Dependent
Is there a correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behavior, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls?	Social media use	Disordered eating behaviors
Is there a difference in the prevalence of disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), between adolescent boys who use social media sites (measured by the Social Networking Activity Intensity Scale [SNAIS]) and adolescent girls who use social media sites?	Gender	Disordered eating behaviors
Is the relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), the same for adolescent boys and girls?	Social media use	Disordered eating behaviors

Study Design

The proposed study will have an observational, cross-sectional design with a Texas-based public high school male and female students who are 14 to 18 years old. This study design, similar to many other studies focused on this topic (Byrd-Bredbenner, 2013; Kaewpradub et al., 2017; McLean et al., 2015; Peat et al., 2014; Pilgrim & Bohnet-Joschko, 2019; Quick and Byrd-Bredbenner, 2013; Sidani, et al., 2016; Tran et al., 2019) was chosen because it's a time and cost-effective way to collect a large amount of data

from a large sample size in a short amount of time. Additionally, the design has the ability to provide information on the current beliefs and thought processes of high school students today and enables researchers to look at multiple characteristics (i.e., age, gender, grade in school, social media and eating behaviors, etc.) at a single moment in time. Finally, in comparison with longitudinal studies, participants are less likely to drop out of cross-sectional studies as the data collection process requires less commitment, time, and effort from the subject.

This high school was chosen for numerous reasons. The first reason is that it's a public school, which typically contains a more racially, ethnically, academically, and socioeconomically diverse student body compared to a private school, providing a more diverse population (Ee et al., 2018). Second, it contains 2671 total for the 2019-2020 school year, with males making up 1375 males and 1296 females (Common Core of Data, 2021). This school size increases the likelihood of having a larger sample size. Additionally, 2019-2020 enrollment data shows a diverse racial and ethnic group, including 12 (.04%) American Indian/Alaska Native students, 272 (10%) Asian, 622 (23%) Black, 801 (30%) Hispanic, 90 (.03%) Native Hawaiian/Pacific Islander, 746 (28%) White, and 128 (5%) as two or more races (Common Core of Data, 2021). In comparison to the national data, the chosen high school has a smaller percentage of White, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander and a higher percentage of Latinx, Black, and Asian (Act for Youth, 2021). There were 1080 (40%) students who were found to be free lunch eligible, which is near the state and national averages (Public School Review, 2021; U.S. Department of Education, 2019).

Setting and Sample Size

Sample size

The study will include social media-using males and females ages 14 to 18 years old. Although the focus is on the attitudes of males, females will also be included in order to compare behaviors between the genders. Those who have provided consent or assent to participate in the study, identify as male or female, use at least one social media platform, are students at the school, and are between the ages of 14 to 18 years old will be included in the study group. The sample will be based on non-probability convenience sampling, which was used in a similar study (Aparicio-Martinez et al., 2019).

The desired sample size was calculated using a sample size calculator created by Creative Research Systems, a company that creates survey software (Creative Research Systems, 2012). Given that the population is 2671, a sample size of 336 participants must be obtained to maintain a 5% margin of error and a 95% confidence interval (Creative Research Systems, 2012). Surveys that are not completed in full will be excluded. This decision is based on a similar study by Sidani et al., 2016.

Population

The sample will include males and females between the ages of 14 to 18 years old who attend a public high school in Euless, Texas. Additionally, students who report using greater than or equal to 1 social media app will be included in the study. Students with a diagnosed eating disorder or history of an eating disorder and those with a diagnosed emotional or addiction disorder will be excluded from the study. Additionally, individuals who do not have access to a cell phone, computer, laptop, or tablet will be excluded from the study.

Recruitment

An email will be sent to the high school principal and vice-principal describing the purpose and design of the study and asking for their approval to conduct the study with students from the high school. Once the administrators approve, an email will be sent to the parents of the students ages 14 to 17 years old and to 18-year-old students describing the purpose and design of the study and requesting their permission for their child or children to complete the survey. A consent form (see Appendix B) in the form of a DocuSign will be sent to the parents and adult students. It will include a detailed description of what the study entails and a request for signature at the bottom of the document. Once the parents approve and signatures are obtained, an assent form (see Appendix C) will be sent to the participants. Once consent and assent are obtained by both parties, a survey link from SurveyMonkey will be emailed to the students participating in the study. Each participant will receive a unique code that is generated by SurveyMonkey that will be included on their survey. This code will replace their name to maintain anonymity. Students will be asked to complete the survey in totality. All participants will be informed that if they chose to complete the survey, they have a chance to win a \$20 Visa gift card. Participants' unique code will be "picked out of a hat" using an app called Pickster and 20, \$20 gift cards will be distributed to those whose names are selected.

Data Collection Process**Instrumentation**

Participants will be asked to complete a 31-question digital survey (see Appendix D) via Survey Monkey containing a variety of questions about demographic information,

social media use, and disordered eating behaviors. Subjects will be asked to complete the survey in totality. SurveyMonkey was chosen because it is a safe tool commonly used by students conducting academic research (SurveyMonkey and IRB Guidelines, 2021).

Next, students will be asked to complete two validated tools (Li et al., 2016; Prinjak et al., 2020). The first, Social Networking Activity Intensity Scale (SNAIS), (Appendix D) is a 14-item questionnaire that assesses individuals' frequency of use across multiple social networking sites. It measures individuals' various social networking characteristics including devices used, purposes for using social networking, duration of use, number of days/week, amount of time/day, and number of social networking friends. The final part of the survey will include the Eating Disorder Examination Questionnaire – Short (EDE-QS) (Appendix D). This is a 12-question-long questionnaire that assesses eating disorder behaviors by asking participants about behaviors that they may have engaged in within the last 28 days, ranging from “never” to “every day”. The shortened version of this questionnaire will be used in an effort to prevent questionnaire fatigue. Data will be collected over a 1-month period of time to allow enough time to reach the desired sample size. Additionally, researchers who conducted a similar cross-sectional study also collected data within a 1-month time frame (Sidani et al., 2016).

Data Analysis Plan

Descriptive Statistics

For the proposed study there will be two cohorts: (1) those who identify as female and use one or more social media platform(s) and (2) those who identify as male and also use one more social media platform(s). This is to compare the social media and disordered eating experiences amongst the genders. Mean and standard deviation will be

calculated for the quantitative variables and frequencies in the case of qualitative variables.

Inferential Statistics

As depicted in table 2, three tests of significance will be used to measure the independent and dependent variables.

Table 2

Description of Variables

Research Question	Independent	Potential responses	Level of measurement	Dependent	Potential responses	Level of measurement	Test of significance
Is there a correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behavior, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among adolescent boys and girls?	Social media use	SNAIS	Continuous	Disordered eating behaviors	EDE-QS	Continuous	Pearson's r correlation

<p>Is there a difference in the prevalence of disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), between adolescent boys who use social media sites (measured by the Social Networking Activity Intensity Scale [SNAIS]) and adolescent girls who use social media sites?</p>	<p>Gender</p>	<p>Male or Female</p>	<p>Binary</p>	<p>Disordered eating behaviors</p>	<p>EDE-QS</p>	<p>Continuous</p>	<p>Independent samples t-test</p>
<p>Is the relationship between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and disordered eating behaviors, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), the same for adolescent boys and girls?</p>	<p>Social media use</p>	<p>SNAIS Male or Female</p>	<p>Continuous</p>	<p>Disordered eating behaviors</p>	<p>EDE-QS</p>	<p>Continuous</p>	<p>Multiple regression model</p>

Pearson’s correlation coefficient will be used to measure the statistical relationship between the two continuous variables, social media use and disordered eating. Independent samples t-test will be used to compare the mean differences in disordered eating behaviors between males and females. Finally, a multiple linear

regression will be used to predict disordered eating behaviors from social media use, gender, and the interaction between social media use and gender will be completed. The focus will be on the interaction between social media use and gender. The coefficient for the interaction and the overall R^2 will be reported in the predicted results section. The slopes for males and females will be plotted separately to visualize the interaction between the two groups. Results will be considered statistically significant if the p-value is less or equal to 0.05.

Threats to Validity

There will be three key threats to validity in this study including research bias, respondent bias, and the study design. Despite the efforts to create a well-designed study, there is always a risk of research bias. Additionally, the participants of the study may carry an unconscious bias that may skew their answers. Finally, the observational, cross-sectional study design is limited in that it draws information from one point in time, therefore it is impossible to determine causation from the results.

Ethical Procedures

All procedures performed in the study will be in accordance with Institutional Review Board guidelines and mandates to protect the human participants from harm (see Appendix A). Participants will receive a unique code in lieu of documenting their name in an effort to prevent the investigator from knowing the respondents' identity. Informed consent will be obtained from the parents of participants who are under the age of 18 and those participants who are 18, and assent will be obtained from the participants who are under the age of 18. Confidentiality and privacy will be maintained throughout the entirety of the study and practical security measures to ensure that each participants' data

remains private will be taken. All information obtained will be kept confidential by the researchers who will be the only people with access to the data. Information obtained will be stored electronically and will be password protected.

Summary

In conclusion, the proposed cross-sectional study will compare the impact that frequency and duration of social media use have on individuals' eating behaviors and will explore the role, if any, that gender plays. The participants will be recruited from a public high school in Euless, Texas, and will be between the ages of 14 to 18. Both descriptive and inferential statistics will be used to analyze data. Various ethical procedures, including obtaining written consent and assent and password-protected surveys, will be in place. Chapter 4 will describe the anticipated results of the study.

Chapter 4: Anticipated Results

Characterization of the Study Population

A total of 336 participants will be recruited from a public high school in Euless, Texas. Surveys that are not completed in full will be excluded. Given that the chosen high school has 2671 total students, with 51% being males and 49% females (Common Core of Data, 2021), it is anticipated that the study will include 169 males and 161 females. There were six people who fit with the other/prefer not to say category. These individuals will not be included in the data analyses. As depicted in Table 1, the mean and standard deviation will be calculated for the continuous variables and frequencies and percentages in the case of categorical variables.

Table 3*Demographics of the Study Sample (n = 330)*

	Total (n = 330) N (%)
Age ^a	16 (1.6)
Year in school	
Sophomore	107 (32%)
Junior	124 (38%)
Senior	99 (30%)
Gender	
Male	169 (50%)
Female	161 (48%)
Disordered eating behavior ^a	5 (1.2)
Social Media Use ^a	30 (4)

a. Mean (SD) provided for the continuous variables age, SNAIS, and EDE-QS.

Research Question 1

Figure 1 displays the possible trend of data when determining if there is a correlation between frequency of social media use, measured by the Social Networking Activity Intensity Scale (SNAIS), and severity of disordered eating behavior, measured by the Eating Disorder Examination Questionnaire – Short (EDE-QS), among individuals ages 14 to 18 years old. Each scale will be examined for outliers for potential removal from the analysis. The figure shows that there is a moderate positive relationship between disordered eating and social media use shown in the sample ($r(228) = .38, p < .05$).

Figure 1

Research Question 2

Figure 2 displays the mean differences in disordered eating behaviors between adolescent boys and girls, with females scoring higher. Specifically, the mean EDE-QS scores among males were 2.5 ($SD = .5$) while the mean score for females was 4.5 ($SD = 1$) (mean difference = 2, pooled $SD = 0.75$, $t(329) = 2.67$, $p < .05$).

Figure 2

Research Question 3

Figure 3 depicts possible data trends that show the difference between the frequency of social media use and disordered eating behaviors for males and females. In the multiple regression model, the interaction between social media use and gender will be significant. The figure shows that as social media use increases, the severity of disordered eating is predicted to increase for both males and females. However, the line graph shows a stronger positive relationship between social media use and disordered eating among females compared to males ($B = 1.3, SE = .35, p < .05$).

Figure 3

Chapter 5: Discussion

Overexposure to social media is associated with eating concerns, disordered eating, and eating disorders (Sidani et al., 2017). It is a common misconception that women are the only gender at risk for developing body, food, and self-esteem issues due to using social networking sites (Carrillo, 2018; Gomes et al., 2019; Lavender et al., 2017). As Choukas-Bradley et al. (2020); Doumit et al. (2017); Griffiths et al. (2018) demonstrated in their studies, males are not exempt from experiencing adverse effects from social media use. There is a lack of evidence that examines whether the relationship between social media use and disordered eating behaviors is present in adolescent males, and if so, if the relationship is the same in females. This chapter will discuss the anticipated results of the proposed study, and compare those results from previous, similar studies conducted by Kaewpradub et al. (2017), Sidani et al. (2016), and Vries et al. (2016).

Characterization of the Study Population

Like Kaewpradub et al. (2017) and Vries et al. (2016), the proposed cross-sectional study will include adolescent boys and girls. Additionally, there will be a similar number of males and females, similar to Vries et al.'s (2016) study. Unlike Kaewpradub et al. (2017), Sidani et al. (2016), and Vries et al. (2016), which included 600+ subjects in Bangkok, the Netherlands, and across the United States, the study will consist of 330 high school students based in Euless, Texas.

Interpretation of Results

This cross-sectional study will evaluate if there is a relationship between frequency of social media use and disordered eating, if there is a difference in the

prevalence of disordered eating among social media-using adolescent boys and girls, and if the frequency of social media use is the same for adolescent boys and girls. It is anticipated that a moderate positive relationship will be found between disordered eating and social media use. Additionally, it is predicted that females will have a higher mean on the disordered eating scale than males. Finally, as social media use increases, it is anticipated that the severity of disordered eating is predicted to increase for both males and females. However, a stronger positive relationship will be shown between social media use and disordered eating among females compared to males.

Comparison to Other Studies

The anticipated results are similar to those of previous research conducted by Kaewpradub et al. (2017), Sidani et al. (2016), and Vries et al. (2016). Kaewpradub et al. (2017) examined the relationship between internet usage, body image, and eating behaviors in male and female adolescents. Students were selected by the use of simple random sampling from six secondary schools in Bangkok. Similar to the proposed study, internet and social media use was shown to positively correlate with the risk of developing disordered eating or eating disorder behaviors. Additionally, Kaewpradub et al. (2017) found that adolescent female subjects had higher amounts of eating disorder behaviors, including purging, excessive exercise, and weight loss pills and supplements, compared to adolescent males.

Sidani et al. (2016) explored the relationship between social media use and eating concerns among young adult men and women between 19 to 32, considering both volume and frequency when examining participants' social media use. Unlike this study, the authors used the Sick, Control, One, Fat, Food Questionnaire, and the Eating Disorder

Screening to assess eating concerns. However, similar to the results of the proposed study, researchers reported a significant positive overall linear association between social media use and eating concerns. Additionally, participants with a higher volume and frequency of use showed a significantly higher incidence of eating concerns than those with less usage. It is important to note that the proposed study includes a different age group than the study conducted by Sidani et al. (2016).

Vries et al. (2015), who conducted a study on 11 to 18-year-old males and females, aimed to learn more about the causal relationship between social media use and body dissatisfaction in adolescents. Similar to the proposed results, the researchers found that female participants reported a higher frequency of social media use, peer appearance-related feedback, and more dissatisfaction with their body image than their male counterparts (Vries et al., 2015). Additionally, as shown in the proposed study's results, their data showed that the higher the frequency of social media use, the greater body dissatisfaction among participants (Vries et al., 2015). However, contrary to the proposed study, the authors concluded a causal relationship between the amount and frequency of social media use and body dissatisfaction among adolescents.

Strengths and Limitations

There are several strengths of this study. The first is the cross-sectional design of the study. This design is a time and cost-effective way to collect a large amount of data from a large sample size in a short amount of time. Additionally, the design can provide information on the current beliefs and thought processes of high school students today and enables researchers to look at multiple characteristics (i.e., age, gender, grade in school, social media and eating behaviors, etc.) at a single moment in time. Furthermore,

the two scales used, EDE-QS and SNAIS, are validated and reliable scales. Finally, compared with longitudinal studies, participants are less likely to drop out of cross-sectional studies as the data collection process requires less commitment, time, and effort from the subject. Additionally, participants were made aware that their responses were confidential, thus decreasing the likelihood of false data. Furthermore, the study sampled a large public high school with a relatively diverse student population. It contains 2671 total for the 2019-2020 school year, with males making up 1375 males and 1296 females (Common Core of Data, 2021). This school size increases the likelihood of having a larger sample size. Furthermore, 2019-2020 enrollment data shows a diverse racial and ethnic group, including 12 (.04%) American Indian/Alaska Native students, 272 (10%) Asian, 622 (23%) Black, 801 (30%) Hispanic, 90 (.03%) Native Hawaiian/Pacific Islander, 746 (28%) White, and 128 (5%) as two or more races (Common Core of Data, 2021). In comparison to the national data, the public high school chosen has a smaller percentage of White, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander and a higher percentage of Latinx, Black, and Asian (Act for Youth, 2021). There were 1080 (40%) students who were found to be free lunch eligible which is near the state and national averages (Public School Review, 2021; U.S. Department of Education, 2019), revealing the socioeconomic status of the student body.

There are limitations worth noting. The first is the cross-sectional design of the study. Although, as previously mentioned, the design has several strengths, it also fails to collect and examine data over a long period of time and to infer causation. Next, the SNAIS and EDE-Q are both relatively brief questionnaires that likely only scrape the surface of what can be asked when assessing eating disorders and social media behavior.

Furthermore, because the study includes self-reported data, there is a risk of bias in reporting sensitive information. Additionally, the data is collected from one high school in Texas and cannot apply to other adolescents who do not attend public high school and live in the Southern region of the United States. Furthermore, because the proposed study includes individuals ages 14 to 18, it cannot speak to other age groups. Finally, the study did not include nonbinary and trans students. Research has shown that individuals in these groups are more prone to developing body image issues and disordered eating behaviors (Guss et al., 2017; Jones et al., 2016; Watson et al., 2017). More research, including this at-risk population, is needed.

Suggestions for Future Studies

A review of the current literature on this topic and results from the proposed study reveals the increasing prevalence of social media use and disordered eating behaviors among adolescents, and thus, the need for additional research and healthcare interventions to address the issue. Because the SNAIS was limited to fourteen questions, a broader scale is needed to understand individuals' social media behaviors better. Furthermore, there is a need to analyze, compare, and contrast subjects' activity on specific social media sites to determine their potential impact on eating behaviors and body image. This data has the potential to help health care providers better understand which behaviors and sites may be more harmful to at-risk individuals, thus improving patient care. Similarly, a study including a more in-depth analysis of eating disorder behaviors, such as the EDE-Q, EAT-26, or interviews with healthcare professionals specializing in eating disorders is needed to identify disordered behaviors correctly. Finally, as mentioned before, nonbinary and trans individuals are at greater risk of

developing body image issues and disordered eating behaviors (Guss et al., 2017; Jones et al., 2016; Watson et al., 2017), therefore, a study on this population would be helpful. Additionally, social media has been identified as a risk factor for eating disorders in sexual minority individuals, including those who are members of the LGBTQ community (Parker & Harriger, 2020). Therefore, more research, including prevention and intervention program proposals, is needed to address this growing issue.

Conclusion

As social media use continues to rise, so will the potential for negative impacts, including disordered eating behaviors. The proposed study will bring awareness to this issue and potentially pave the way for more extensive studies, projects, prevention, and intervention programs. A focus on this under-researched population will help health care practitioners, especially dietitians, better understand their patients, clients, and the general public.

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Appendix A

Office use only: IRB Approval #: _____

**Mount Mary University
Institutional Review Board (IRB)
for the Protection of Human Subjects**

Application for IRB Review

**DATA COLLECTION CANNOT BEGIN
UNTIL THE IRB HAS APPROVED THIS PROJECT**

Directions:

- Faculty and student researchers, as well as student research advisors, should **read all relevant information on the University IRB page in My Mount Mary before initiating an application**. This includes full knowledge of the US Department of Health and Human Services Code of Federal Regulations Title 45 (Public Welfare), Part 46 (Protection of Human Subjects).
<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html>
- All applicants must verify completion of Human Subjects Training. See <http://www.citiprogram.org>
- The IRB application must be filed and approved by the IRB **prior** to any Mount Mary University faculty, staff, or student (undergraduate or graduate), initiating a research project/study.
- If there is a cooperating institution, attach a copy of their IRB approval.
- In the case of a student research project, the student may complete the IRB application but the student's research advisor must sign and submit the application to the IRB for approval. It is the responsibility of the faculty research advisor to ensure that student applications and all attachments (e.g., informed consent forms and survey instruments) are in their final edited form. Even though a student research project may qualify as **exempt** from full IRB review, the research advisor may request the student to complete and submit a full IRB application.
- Complete this application using your word processing program (ex. Word), then print it out and obtain signatures from all investigators and advisors. (**Handwritten applications will not be accepted.**) For your benefit, save the completed application on your computer in case it needs to be revised and resubmitted.
- This is a professional document; please check spelling, grammar and punctuation.

- Submit an electronic copy, via email, of the completed application with required signatures and attachments, **in a single pdf**, to Tammy Scheidegger, IRB Chair, scheidet@mtmary.edu . You will receive an email verifying receipt of the application from the IRB Board Chair.
- Allow a **minimum of 30 working days** to process your application. Make sure this timeframe is accounted for when considering initiation of data collection and due dates for student projects. Please be aware that if, upon completion of the application, you find that ***no exemptions apply to your research, your application will need to go through a full IRB Committee review which can take as many as 60 days to be completed.***
- For class projects you must submit IRB applications to the IRB Chair by October 31st of the fall semester and March 31st for the spring semester. For summer classes, please consult with the IRB Chair.
- Upon receipt of the IRB letter of approval, data collection may begin.

I. Required Documentation - No action will be taken without these attachments.

Are the following attached to the IRB application?

Informed Consent Document	<input checked="" type="checkbox"/> Yes	Informed Consent Documents should include an explanation of procedures, risk, safeguards, freedom to withdraw, confidentiality, offer to answer inquiries, third party referral for concerns, signature and date. See Appendix.A and use the MMU Informed Consent Template to avoid delays in the process.
Questionnaire/Survey Instrument(s)	<input checked="" type="checkbox"/> Yes	If a survey is being administered in any written format (e.g., survey monkey, qualtrics), a copy of that survey must accompany this application. If a survey is being conducted verbally, a copy of the introductory comments and survey questions being asked must be attached to this application. If survey includes focus group questions, a complete list of the question must be attached. For research using a published/purchased instrument, a photocopy of the instrument will suffice.
Verification of Human Subjects Training	<input type="checkbox"/> Yes	Copy of transcript, certificate or other evidence that ALL members of the research team have completed the required training.
Copy of cooperating institution's IRB approval.	N/A	Not required if there is no cooperating institution.

II. Investigator(s):

Name: Ellen Stamerjohn Phone: 217-653-5338
 Affiliation with Mount Mary University (e.g. faculty,
 student, etc.): Graduate Student
 Email: stamerje@mtmary.edu

Signature: Ellen Stamerjohn _____ Date: 04/15/2021

Name: Phone:
 Affiliation with Mount Mary University:
 Email:

Signature: _____ Date:

If student, list Research Advisor and complete the application. Research Advisor must provide requested information and verify.

Research Advisor's Name: Dr. Dana Scheunemann Department: Dietetics
 Email: scheuned@mtmary.edu Phone: 414-930-3658

Research Advisor: Have you completed Human Subject's Training? Yes No

Research advisor's signature indicates responsibility for student compliance with all IRB requirements.

Signature: Date:

 Research Advisor

III. Project Description – Required by all applicants

Instructions: Briefly describe the proposed project including the sample and methodology (e.g. human subjects, data collection, data analysis and instruments).

1) Objectives (purpose of project):

The objective of this study is to determine if there is a correlation between frequency of social media use and disordered eating, if there is a difference in the prevalence of disordered eating among social media-using adolescent boys and girls, and if the relationship between frequency of social media use is the same for adolescent boys and girls.

2) Relevance to practice/body of knowledge:

The goal of this study is to bring awareness to this under-researched population and, in turn, help health care practitioners, especially dietitians, better understand their patients, clients, and the public in general. Additionally, it's to potentially serve as a catalyst to develop prevention programs to be implemented into schools that raises awareness on the potentially harmful effects of social media use and educate students, teachers, guardians and practitioners on the issue.

3) Describe the research design (e.g. subject/participant selection and assignment, design, intervention, data analysis):

The proposed study will have an observational, cross-sectional design with high school male and female students who are 14 to 18 years old. This study design, similar to many other studies focused on this topic (McLean et al., 2015; Kaewpradub et al., 2017; Peat et al., 2014; Pilgrim & Bohnet-Joschko, 2019; Quick and Byrd-Bredbenner, 2013; Sidani, et al., 2016; Tran et al., 2019) was chosen because it's a time and cost-effective way to collect a large amount of data from a large sample size in a short amount of time. Additionally, the design has the ability to provide information on the current beliefs and thought processes of high school students today and enables researchers to look at multiple characteristics (i.e., age, gender, grade in school, social media and eating behaviors, etc.) at a single moment in time. Finally, in comparison with longitudinal studies, participants are less likely to drop out of cross-sectional studies as the data collection process requires less commitment, time, and effort from the subject.

This high school was chosen for numerous reasons. The first reason is that it's a public school, which typically contains a more racially, ethnically, academically, and socioeconomically-diverse student body compared to a private school, providing a more diverse population (Ee et al., 2018). Second, it contains 2671 total for the 2019-2020 school year, with males making up 1375 males and 1296 females (Common Core of Data, 2021). This school size increases the likelihood of having a larger sample size. Additionally, 2019-2020 enrollment data shows a diverse racial and ethnic group, including 12 (.04%) American Indian/Alaska Native students, 272 (10%) Asian, 622 (23%) Black, 801 (30%) Hispanic, 90 (.03%) Native Hawaiian/Pacific Islander, 746 (28%) White, and 128 (5%) as two or more races (Common Core of Data, 2021). In comparison to the national data, the high school chosen for the study has a smaller percentage of White, American Indian or Alaska Native, and Native Hawaiian or Pacific

Islander and a higher percentage of Latinx, Black, and Asian (Act for Youth, 2021). There were 1080 (40%) students who were found to be free lunch eligible which is near the state and national averages (Public School Review, 2021; U.S. Department of Education, 2019).

4) What measurement/data collection tools are being used?

Demographic questions (including age, grade level, and gender identity), Social Networking Activity Intensity Scale (SNAIS), Eating Disorder Examination Questionnaire – Short (EDE-QS)

IV. Additional Project Information – Required by all applicants

1) What human subjects training has the researcher completed (e.g. course work, online certification)?

2) What process is used for obtaining informed consent (attach the informed consent application)? See Appendix for consent application.
See Appendix B for consent application.

3) Does the research include special populations?

Minors under 18 years of age?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Persons legally incompetent?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Prisoners?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Pregnant women, if affected by research?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Persons institutionalized?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Persons mentally incapacitated?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

4) If **YES**, describe additional precautions included in the research procedures. An email will be sent to the high school principal and vice-principal describing the purpose and design of the study and asking for their approval to conduct the study with students from the high school. Once the administrators approve, an email will be sent to the parents of the students describing the purpose and design of the study and requesting their permission for their child or children to complete the survey. A consent form (see Appendix B) in the form of a DocuSign will be sent to the parents with a detailed description of what the study entails and a request for signature at the bottom of the document. Once the parents approve and signatures are obtained, an assent form (see Appendix C) will be sent to the participants. Once consent and assent are obtained by both parties, a survey link from SurveyMonkey will be emailed to the students participating in the study. Each participant will receive a unique code that is generated by SurveyMonkey that will be included on their survey. This code will replace their name to maintain anonymity. Students will be asked to complete the survey in totality. All participants will be informed that if they chose to complete the survey, they have a chance to win a \$20 Visa gift card. Participants' unique code will be "picked out of a hat"

using an app called Pickster and 20, \$20 gift cards will be distributed to those whose names are selected.

All procedures performed in the study will be in accordance with Institutional Review Board guidelines and mandates to protect the human participants from harm (see Appendix A). Participants will receive a unique code in lieu of documenting their name in an effort to prevent the investigator from knowing the respondents' identity. Informed consent will be obtained from the parents of participants who are under the age of 18 and those participants who are 18, and assent will be obtained from the participants who are under the age of 18. Confidentiality and privacy will be maintained throughout the entirety of the study and practical security measures to ensure that each participants' data remains private will be taken. All information obtained will be kept confidential by the researchers who will be the only people with access to the data. Information obtained will be stored electronically and will be password protected.

5) Does the research involve any of the following procedures?

- | | | |
|---|------------------------------|--|
| False or misleading information to subjects? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Withholds information such that their informed consent might be questioned? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Uses procedures designed to modify the thinking, attitudes, feelings, or other aspects of the behavior of the subjects? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

6) If **YES**, describe the rationale for using procedures, how the human subjects will be protected and what debriefing procedures are used.

7) Does the research involve measurement in any of the following areas?

- | | | |
|-------------------|------------------------------|--|
| Sexual behaviors? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Drug use? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Illegal conduct? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Use of alcohol? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

8) If **YES**, describe additional precautions included in the research procedures.

9) Are any portions of the research being conducted online?

- | | | | |
|---|---|--|--------------------------|
| Survey posted on a website? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | If yes, assure anonymity |
| URL for survey includes information that could identify participants? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, assure anonymity |
| Invitation to participate sent by email? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, assure anonymity |

Items use drop-down box?

Yes No

If yes, assure that items allow choice of “no response”

10) If **YES**, describe additional procedures.

Once consent and assent is obtained by both parties, a survey link from SurveyMonkey will be emailed to the students participating in the study. Both groups will be asked to complete the survey in totality. SurveyMonkey was chosen because it is a safe tool commonly used by students conducting academic research (SurveyMonkey and IRB Guidelines, 2021).

11) Describe the methods used to ensure confidentiality of data obtained.

All information obtained will be kept confidential by the researchers who will be the only people with access to the data. Information obtained will be stored electronically and will be password protected. Per the U.S. Office of Human Research Protections (code §46.115), all data will be destroyed 3 years after the end of data collection. Paper files will be shredded, and electronic files will be deleted. Individual participants will not be identified in any report or publication about this study.

Risks and Benefits

1) Describe risks to the subjects and the precautions that will be taken to minimize them. (Risk includes any potential or actual physical risk of discomfort, harassment, invasion of privacy, risk of physical activity, risk to dignity and self-respect, and psychological, emotional or behavioral risk.)

The primary risk of participation is revealing private information about their child. Additionally, some students may experience the following symptoms: fatigue, boredom, anxiety, restlessness.

2) Describe the benefits to subjects and/or society. (These will be balanced against risk.) The main benefit is contributing to the body of research on this topic to better understand the psychosocial components of social media use. Additionally, the study has the potential serve as a catalyst to develop more prevention programs to be implemented into schools that raises awareness on the possible harmful effects of social media use and educate students, teachers, guardians and practitioners on the issue.

V. Is the proposed project “research” as defined by Institutional Review Board requirements? - Required by all applicants

- Research is defined as a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.
- A human subject is defined as a living individual about whom an investigator obtains either 1) data through intervention or interaction with the individual; or 2) identifiable private information.

Does the research involve human subjects or official records about human subjects?

- Yes
 No

If NO STOP here, and SUBMIT application.

If the results will be available in the library, presented at a professional conference (includes any presentation to group(s) outside of the classroom), or published, please check the Yes box:

- Yes
 No

If the YES box is CHECKED, proceed to SECTION VI.

If the NO box is CHECKED, STOP here, and SUBMIT application.

Appendix B**Mount Mary**
UNIVERSITY**Research Participant Information and Consent Form**
Mount Mary University

Title of Study: An Observational, Cross-Sectional Study to Assess the Relationship Between Social Media Use and Disordered Eating in Adolescent Males Compared to Adolescent Females

Invitation to Participate and Purpose of the Research

You and your child are invited to participate in a research study that seeks to examine the relationship between social media use and disordered eating behaviors among adolescents. The purpose of the study is to examine the connection between social media use and its impact on your child or children's eating habits. You are being asked to take part in the study because I am interested to learn more about if this topic applies to high school students. Your children cannot take part in this study if you have been diagnosed or currently live with an emotional, addiction, or eating disorder. Participants will be asked to complete a 31-question digital survey including questions regarding demographics, social media use, eating behaviors and body image. Once the survey is completed in its entirety, each participant's unique code will be entered to win a \$20 Visa gift card. Data will be de-identified and analyzed by researchers. Participants who are under the age of 18 will be asked to complete an assent form.

Benefits and Risks

This research is designed to benefit the dietetics and psychology professions, by exploring the link

between social media use and disordered eating behaviors. Although participants may not benefit personally from being in this research study, findings generated by this research may add new knowledge to the dietetics and psychology field in general. Additionally, participants have the chance for participants to win a \$20 Visa gift card for completing the entire survey. The primary risk of participation is revealing private information about your child.

Confidentiality

All information obtained will be kept confidential by the researchers who will be the only people with access to the data. Information obtained will be stored electronically and will be password protected. Per the U.S. Office of Human Research Protections (code §46.115), all data will be destroyed 3 years after the end of data collection. Paper files will be shredded, and electronic files will be deleted. Individual participants will not be identified in any report or publication about this study.

Contact Information

If you have questions about this research study, your rights as a research subject, or would like to know the outcome of the research, please contact Dr. Dana Scheunemann, 414-903-3658, scheuned@mtmary.edu and Ellie Stamerjohn, 217-653-5338, stamerje@mtmary.edu. If you have any questions regarding your rights or privacy as a participant in this study, please contact Dr. Tammy Scheidegger, Mount Mary University Institutional Review Board Chair, 2900 North Menomonee River Parkway, Milwaukee, Wisconsin, 53222-4597, telephone (414) 930-3434 or email schediet@mtmary.edu.

Consent

By signing below, you are indicating that you have read this consent form, have been given the opportunity to ask questions, and have agreed to voluntarily participate. You may withdraw from participation at any time, or refuse to answer any question herein, without penalty or loss of benefits to which other participants are entitled.

You may request a copy of this page for your records. Thank you for your participation.

Signature of participant _____ Date _____

Appendix C**Research Participant Information and Assent Form
Mount Mary University**

Title of Study: An Observational, Cross-Sectional Study to Assess the Relationship Between Social Media Use and Disordered Eating in Adolescent Males Compared to Adolescent Females

My name is Ellie Stamerjohn. I am a Registered Dietitian and a graduate student at Mount Mary University in Milwaukee, Wisconsin. I am inviting you to participate in a research study about social media use and eating behaviors. Your parent(s) know we are talking with you about the study. This form will tell you about the study to help you decide whether or not you want to take part in it.

What is the key information about this research study?

The following is a short summary of this study to help you decide whether you want to be a part of this study. Information that is more detailed is listed later on in this form.

The purpose of this study is bring awareness to the potential impact that social media use can have on our eating habits and how we view our bodies. You will be asked to complete a 31- question digital survey. Once you complete the entire survey, you will be entered for a chance to win a \$20 Visa gift card. The primary risk of participation is revealing

private information about yourself. The main benefit is contributing to the body of research on this topic.

Why is this study being done?

The purpose of the study is to examine the connection between social media use and its impact on our eating habits. You are being asked to take part in the study because I am interested to learn more about if this topic applies to high school students. You cannot take part in this study if you have been diagnosed or currently live with an emotional, addiction, or eating disorder.

Questions you may have.

If you decide to be in the study, I will ask you to honestly answer all 36 of the survey questions. The questions will ask you about who you are, your social media use, and eating behaviors. This should take you about 20 minutes.

What are the benefits to you?

If you take part in this study, you might learn more about your eating habits and possibly earn a prize of a \$20 gift card.

Are there any risks to me if I decide to be involved in this study?

There are no foreseeable risks, however some students may experience the following symptoms: fatigue, boredom, anxiety, restlessness.

How will my information be protected?

Your responses will be confidential and anonymous. We will not be collecting your name, but instead will provide you with a unique code that is generated by Survey Monkey. This personal information is only accessed by the researcher or the research team who is doing the study. The results of this study may be used in reports, presentations, or publications but your name will not be used. The data will be stored in a password protected computer that is accessed only by the research team for up to 1 year after the project is completed.

Do I have to be in the study?

No, you don't. The choice is yours. Your participation in this study is completely voluntary. No one will get angry or upset if you don't want to do this. And you can change your mind anytime if you decide you don't want to be in the study anymore. It will not affect your grade.

Do I get anything in return for participating in this study?

Once you have completed the entire survey, you will be entered for a chance to win a \$20 Visa gift card. Participants' codes will be "picked out of a hat" using an app called Pickster and 20-\$20 gift cards will be distributed to those whose names are selected.

Questions? Please feel free to ask me any questions before signing the consent form or at any time during or after the study.

Principal Investigator: Ellie Stamerjohn, RDN, LD, Master of Science Student at Mount Mary University, 217-653-5338, stamerje@mtmary.edu , 2900 N. Menomonee River Parkway, Milwaukee, WI 53222, Dietetics Department

Faculty Supervisor: Dr. Dana Scheunemann PhD, MS, RD, CD, Assistant Professor- Coordinated Program in Dietetics and Master of Science- Dietetics, 414-903-3658, scheuned@mtmary.edu, Mount Mary University, 2900 N. Menomonee River Parkway, Milwaukee, WI 53222

Signing below means that you have read this form and that you are willing to be in this study.

Name of the Participant (Write your name on the line):

Appendix D

Survey via SurveyMonkey

Please mark an 'X' next to the following statement:

____ I understand that I have a chance to win a \$20 Visa gift card ONLY if I complete the entire survey. If I do not complete the entire survey, my survey will be voided and my code will not be included in the raffle to win the gift card.

Code ##### (unique to each individual)

Date _____

Age _____

Gender (please circle one)

Male

Female

Other/prefer not to say

Grade (please circle one)

10th

11th

12th

How often have you performed the following online social networking activities in the last month?

Social Function (please circle one)

1. Sent messages to friends on message board.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

2. Chatted with friends via instant messaging function.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

3. Replied to comments made by social networking friends.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

4. Commented on friends' status, logs, and photos.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

5. Shared/Forwarded content.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

6. Browsed others' logs/photos/statuses/albums.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

7. Updated self-status.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

8. Posted photos/videos on personal web profile.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

9. Wrote logs/weibo.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

10. Decorated personal web profile.(changed image/contact information/privacy setting)

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

Entertainment Function Use Intensity (please circle one)

11. Surfed entertainment/current news.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

12. Watched video/listened to music.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

13. Played games/applications.

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

14. Bought/gave virtual goods. (e.g. birthday gifts)

0 (never) 1 (few) 2 (sometimes) 3 (often) 4 (always)

ON HOW MANY OF THE PAST 7 DAYS....	0	1-2	3-5	6-7
*please circle one	Days	Days	Days	Days
1. Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your weight or shape (whether or not you have succeeded)?	0	1	2	3
2. Have you gone for long periods of time (e.g., 8 or more waking hours) without eating anything at all in order to influence your weight or shape?	0	1	2	3
3. Has thinking about <u>food, eating or calories</u> made it very difficult to concentrate on things you are interested in (such as working, following a conversation or reading)?	0	1	2	3
4. Has thinking about your <u>weight or shape</u> made it very difficult to concentrate on things you are interested in (such as working, following a conversation or reading)?	0	1	2	3
5. Have you had a definite fear that you might gain weight?	0	1	2	3
6. Have you had a strong desire to lose weight?	0	1	2	3
7. Have you tried to control your weight or shape by making yourself sick (vomit) or taking laxatives?	0	1	2	3
8. Have you exercised in a driven or compulsive way as a means of controlling your weight, shape or body fat, or to burn off calories?	0	1	2	3
9. Have you had a sense of having lost control over your eating (at the time that you were eating)?	0	1	2	3
10. On how many of these days (<i>i.e. days on which you had a sense of having lost control over your eating</i>) did you eat what other people would regard as an <u>unusually large amount of food in one go</u> ?	0	1	2	3
OVER THE PAST 7 DAYS ...	Not at all	Slightly	Moderately	Markedly
*please circle one				

- | | | | | |
|---|---|---|---|---|
| 11. Has your weight or shape influenced how you think about (judge) yourself as a person? | 0 | 1 | 2 | 3 |
| 12. How dissatisfied have you been with your weight or shape? | 0 | 1 | 2 | 3 |

Derived from the EDE-Q, © Fairburn and Beglin, 2008