THE IMPACT OF SOCIAL NETWORKING SITES ON BODY
DISSATISFACTION AMONG MEN AND WOMEN: A META-ANALYSIS

by

Fernando Castaneda

A Thesis Presented to the
Faculty of the Graduate School of Psychology
Of California Lutheran University

In Partial Fulfillment
of the Requirements for the
Master of Science Degree
With an Emphasis in Clinical Psychology

The signatures below certify that the Master Thesis of

Fernando Castaneda

has been approved by the Graduate School of Psychology of California Lutheran
University in partial fulfillment of the requirements for the degree
Master of Psychology

Approved:

Accepted:

Sunyoung Park, Ph.D.
Thesis Committee Chair

Jamie Bedics, Ph.D., ABPP
Director of Graduate Program in
Clinical Psychology

Daniel Tillapaugh, Ph.D.
Committee Member

Richard J. Holigrocki, Ph.D.
Dean, Graduate School of
Psychology

Date

Date

Abstract

The purpose of this study was to determine the difference in impact between men and women on the effects that social networking sites (SNS) have on body dissatisfaction. A total of eight studies (with 48 effect sizes) involving participants being assessed on SNS use frequency and body dissatisfaction in which some correlation was determined were used for this meta-analysis. The current study also chose to evaluate three different moderators: gender, age, and measurement type. Correlations from each study were collected in order to compute a single pooled effect size. The proportion of men and mean age were also collected from each study in order to assess the gender and age moderators. Types of measurements were coded either as 0 (study used a measurement specifically designed to assess body satisfaction/dissatisfaction) or 1 (study used a subscale from a larger measurement that assessed body satisfaction/dissatisfaction). The pooled effect size showed significance in the overall association between SNS use frequency and body dissatisfaction which supports the findings of previous research. However, neither of the moderators were found to be significant, ultimately rejecting the hypothesis of the current study. This finding may be due to the major limitation of the lack of research available surrounding this topic.

Dedication

I would like to thank my parents for constantly pushing me to achieve all that I can and for their full support throughout my time in this program. Without you, I would not be where I am today.

Acknowledgements

I would like to thank Dr. Jamie Bedics for admitting me into this program and for believing that I had the potential to excel. Without being in this program and gaining this experience, I would not have discovered a newfound love for research.

I would also like to thank Dr. Sunyoung Park for providing such a large amount of teaching during this program and for this thesis. You have contributed so much educational support for me in order to ensure that I produce the highest quality of work.

Finally, I would like to thank Dr. Daniel Tillapaugh for agreeing to provide feedback for my thesis during such a chaotic time. Your knowledge and expertise have allowed me to see my work through a new lens, providing me with new insights along this journey.

TABLE OF CONTENTS

	<u>Page</u>
Abstract	iii
Dedication	iv
Acknowledgements	v
List of Tables	viii
List of Figures	ix
CHAPTER	
I. Introduction	1
Social Networking Sites (SNS)	
Body Dissatisfaction	
Previous Research on the Relationship Between SNS and Body	
Dissatisfaction	
Meta-Analysis	
Current Study	
II. Method	22
Search Strategies	
Eligibility Criteria	
Data Abstraction & Coding	
Moderators	

	Software Analysis	
	Statistical Analysis	
III.	Results	30
	Pooled Effect Size	
	Test of Heterogeneity	
	Moderator Analysis	
	Publication Bias	
IV.	Discussion	39
	Findings	
	Limitations	
	Implications for Future Research	
	Other Implications	
	Conclusion	
V.	References	47

LIST OF TABLES

	Page
Table 1. Sample Characteristics	31
Table 2. Pooled Effect Size (using random effects model)	32
Table 3. Pooled Effect Size (using RVE method)	34
Table 4. Moderator Analysis	35
Table 5. Trim and Fill Plot	38

LIST OF FIGURES

	Page
Figure 1. PRISMA chart of literature search for body dissatisfaction and SNS use	25
Figure 2. Forest plot	33
Figure 3. Funnel plot	37

Introduction

Over the past decade and a half, the use of social networking sites (SNS) have increased dramatically among Americans, with 72% of the public utilizing some type of SNS today (Pew Research Center, 2019). The introduction of many SNS provided users with convenience in multiple ways. Some of these sites allow users to connect with many others who also use the site, regardless of whether or not these people actually know each other outside of the site. This sense of community and belongingness may bring some emotional benefits to users (Reich, 2010). With that said, there are also many negative impacts that these sites may induce upon their users, such as the freedom for others to tell false truths and the adverse emotions that appear as a result of seeking validation and comparing the self to others (Fuller-Tyszkiewicz et al., 2019; Lin et al., 2017; Vogel et al., 2014; Warren, 2014). One particular impact involves the onset of body dissatisfaction in users of various SNS. Typically, researchers have discovered that women are more perceptible to having body dissatisfaction as a result of high SNS use than men (Baker et al., 2019). Previous research indicates that high frequency of SNS use can be correlated to higher levels of body dissatisfaction for both men and women (Breslow et al., 2019; de Vries et al., 2016; Fatt et al., 2019; Griffiths et al., 2018; Howard et al., 2017; Marengo et al., 2018; Saunders & Eaton, 2018; Stronge et al., 2015). The aim of the current study will be to conduct

a meta-analytic review by gathering results from the eight previously cited studies in order to compare the impact of SNS on body dissatisfaction reported between men and women.

Literature Review

In this first section of the literature review, the content will focus on examining the existing literature on social networking sites (SNS). In particular, some background on SNS and the positive and negative impacts they bring will be provided.

Background of Social Networking Sites (SNS)

Within the last couple of decades, technology has become more enveloped into peoples' everyday lives. In fact, it is uncommon for anyone to not consider themselves a user of technology, whether it is for work, school, or personal use. In fact, when it had first been recorded in 2000, 50% of American adults used the internet, whereas today, 90% of American adults use the internet (Pew Research Center, 2019). One of the many aspects of technology that is so prominent in everyday life for many users is social media, or social networking sites (SNS). SNS consist of any website in which users share and create thoughts, ideas, and content within a virtual community and network (Fleck & Johnson-Migalski, 2015). Common examples of these websites/applications include Facebook, Twitter, Instagram, and Snapchat. Dating sites and applications may also be included as SNS, considering they fit within the definition provided. According to the Pew Research Institute, seven in ten Americans use some platform of social media, with Facebook being the most popular website (Pew Research Center,

2019). Various SNS seem to be the hub for sharing content, entertainment, news, and communication with others.

Impacts of Social Networking Sites

Many of these SNS share a common mission for their users, and that is creating a space in which users of the same interest come together and experience a sense of connectedness towards each other. They allow people to become a part of an online community, thus allowing these individuals to build some interdependence between themselves. Reich (2010) even stated that sharing a common interest with others is important for creating this sense of community for users. Another benefit to having access to SNS is the type of content shared. Sites like Instagram and Snapchat are designed to share media posts, such as photos and videos. Although sites like Facebook and Twitter also allow this, their main focus is to allow the sharing of various types of content (i.e., external links, media, status updates). Various news outlets are also present on different SNS and share constant updates regarding current events around the world. For example, media outlets like CNN, USA Today, and The Washington Post can be found on Facebook or Twitter as a means to share this information as it occurs. Users who follow these news accounts stay up-to-date with information that may or may not affect and/or interest them.

Additionally, content for the sole purpose of entertainment and sharing, such as internet memes, can be of benefit for SNS users as the goal for this

content is to bring some sense of joy to people. An internet meme is a piece of culture, usually in the form of an image or a video and meant as a joke, that can be created and found on many SNS, such as Twitter or Instagram, in order to gain influence through transmission. These internet memes are typically viewed to be a source of laughter (Cole-Black, 2018; Mandiberg, 2012).

Along with these benefits of being active in the SNS world, there are also some possible downfalls to utilizing them and communicating with others. The more common known fact is that being on SNS allows you to not be yourself, thus there are many users who are not actually who they say they are. In fact, one study had discovered that only 16-32% of their sample (depending on the type of site they were on) reported always being honest when online (Drouin et al., 2016). Research has also shown that the number of social bots, or computer-generated social media accounts that impersonate humans online in an effort to communicate with them, has been increasing (Yang et al., 2019). Furthermore, this behavior of telling false truths online through SNS may produce even more harm to the self. False self-presentation on Facebook has been an emerging field of exploration among researchers. This includes depicting when users of Facebook participate in certain behaviors while online, particularly lying about their age, relationship status, achievements, etc. or dishonest liking of various types of posts (Wright et al., 2018). In this particular study, Facebook users were asked about their Facebook false self-presentation behaviors and were also

measured for their self-esteem, well-being, depression, anxiety, and stress levels. Those who reported dishonest liking behaviors were associated with increased depression, anxiety, and stress, while those who reported lying behaviors were associated with increased anxiety only (Wright et al., 2018).

Researchers have discovered that SNS use may be identified as predictors for factors of negative mental health, such as symptoms of depression (Pantic, 2014). Past studies have shown SNS use to predict decreases in how people feel moment-to-moment and how satisfied they are with their lives (Kross et al., 2013). In addition, SNS use has also been associated with depressive symptoms as well as with higher levels of narcissism and lower levels of self-esteem (Mehdizadeh, 2010; Pantic et al., 2012). Following this, researchers have shown that SNS users who seek validation from others predicts the intensity in which these individuals use these sites, thus leading them to experiencing negative emotions (Lin et al., 2017). Not only is this connection clear between SNS use and negative mental health, but negative mental health is also closely associated with experiences of body dissatisfaction. Other research in the past demonstrated a strong association between body dissatisfaction and adverse mental health outcomes, such as psychological distress, depression, and anxiety (Ganem et al., 2009).

Body Dissatisfaction

This next section will cover the topic of body dissatisfaction and explain the difference between overall body image and body dissatisfaction. It will also begin the discussion of the relationship between SNS and body dissatisfaction.

Body dissatisfaction is defined as a person's negative attitude towards their own physical appearance, whereas body image is the more subjective perception of one's own body (Heider et al., 2018). The key difference between the two terms is that body dissatisfaction occurs when thoughts about the self are negative, whereas body image contains thoughts about the self that can be positive or negative. Having a negative self-perception of body image can be understood as the equivalent to body dissatisfaction. Not surprisingly, body dissatisfaction can appear in a person having spent a large amount of time on social media. Strubel et al. (2018) explained that women tend to use SNS when viewing important information about fashion and attractiveness, and when women are exposed to societally constructed beauty ideals, increased chances of body dissatisfaction occur. The experience of body dissatisfaction in combination with being active on SNS has been a frequently studied topic in the years since social media and SNS came into existence.

Previous Research on the Relationship between SNS and Body Dissatisfaction

In the following section, a general overview of what past researchers have discovered when studying the relationship between SNS and body dissatisfaction

will be reviewed. This section will also discuss some of the differences found between research that is focused on women and research that is focused on men. To conclude, limitations of previous research will be covered.

Generally, the majority of research in this field heavily includes women as participants more than it does with men (de Vries et al., 2016; Howard et al., 2017; Marengo et al., 2018; Saunders & Eaton, 2018; Stronge et al., 2015). This may be due to previous research findings regarding women being more likely to develop an eating disorder when compared to men (Voges et al., 2019). Body dissatisfaction research that does exist in relation to men have only recently included more specific body dissatisfaction measurements as previous measurements were not as applicable to men. Prior to this though, males were typically understudied when researchers focused on body dissatisfaction (Baker et al., 2019).

In understanding why this standard exists in society, Balswick and Peek (1971) stated that men and women are taught how they must behave based on their gender from the time that they are born. With men, it was translated that they must not express emotions and display physical courage, toughness, competitiveness, and aggressiveness. Any sign of emotion, such as crying, from a boy would result in some type of reprimand from the parents/guardians. Society had adopted this way of thinking after Sigmund Freud's assertion in 1924 that the key determinant of gender identity was biology and that the sex organs one is

born with must contribute to their personal and professional path in life (Weingarten, 2015). Although this idea of raising children based on the sex organs that they are born with has been fading, and more non-traditional behaviors are being encouraged in order to allow children to develop their own identities (Tortorello, 2019), Freud's initial theory may hold a large responsibility for the lack of men willing to participate in research studies that involve them expressing their feelings or emotions.

Therefore, ideas of body dissatisfaction are left unsaid among men more than women. There is approximately double the amount of research in this field for women as there are for men; however, many of those studies with men include women as well. Regardless of gender groups in these studies, the results are fairly similar.

Previous Research on Females' Body Dissatisfaction and SNS Use

The reason for lack of research on this topic in men may have been suggested, but the frequent amount of research conducted on women may also need to be discussed. In studying body dissatisfaction in women, researchers have understood that women's bodies develop differently than men's. For reasons like pregnancy, childbirth, and hormonal fluctuations, the differences in how women's bodies are studied compared to men's may be a bit more obvious as these changes have been known to only occur in women (Runfola et al., 2013). Western culture has also embraced certain ideals of beauty for women since the 1960's, which

have lead them to making unhealthy strides towards a specific look and body type (Forbes et al., 2001). Therefore, women have been the main gender group of interest for research in body dissatisfaction, especially in combination with the effect of SNS, which may be the overall cause for women having been studied more than men.

Both Saunders and Eaton (2018) and Howard et al. (2017) approached this field of research with the shared goal to discover the relationship between the frequency of SNS use and body dissatisfaction among women. The two groups of experimenters recruited women to be participants and provided them with measurements that were used to assess the amount of time these women spent of various SNS and their levels of body dissatisfaction. A key difference between the two bodies of research is that Howard et al. (2017) also examined racial differences in their participants in order to determine the disparities of the relationship between SNS use frequency and body dissatisfaction among Black and White college women. Both research experiments found some positive correlation between the relationships of the two main variables. Saunders and Eaton (2018) grouped their participants by most frequently used SNS: Facebook, Instagram, or Snapchat. Those in the Instagram and Snapchat groups reported negative SNS use experiences impacting body dissatisfaction through processes of social comparison and body surveillance. It is believed that these findings may have occurred because Instagram and Snapchat content is more appearance

focused. The findings of Howard et al. (2017) suggested that Black college women reported less body dissatisfaction than White college women and that frequency of Facebook use, but not Instagram or Twitter, was associated with body dissatisfaction among the entire sample. It is suggested that this is due to the Facebook platform having a more practical interface that allows for easy feedback seeking and reassurance. Both studies were able to conclude their work by reporting an existing correlation between the variables. Although, another key difference between the two studies were that the researchers found different SNS to be more impactful on body dissatisfaction from their groups of participants.

Previous Research on Males and Females' Body Dissatisfaction and SNS Use

The following three studies conducted similar research, although their groups of participants consisted of both men and women rather than just one gender (de Vries et al., 2016; Marengo et al., 2018; Stronge et al., 2015). Each group of researchers studied the relationship between SNS use frequency and levels of body dissatisfaction with a few differences from each other's studies.

Marengo et al. (2018) chose to observe the impact of highly-visual social media (HVSM), which can be described as any SNS that relies heavily on the sharing of videos, images, and other visual content, such as Instagram and Snapchat, within a group of Northern Italy residents. Stronge et al. (2015) chose to use Facebook as their SNS variable whereas de Vries et al. (2016) used

Hyves.nl, a popular SNS in the Netherlands that competed with sites such as Facebook and MySpace.

Another difference that was found between these studies was the type of measurement used to assess body dissatisfaction. The Body Shape Questionnaire and Body Areas Satisfaction Scale were used by Marengo et al. (2018) and de Vries et al. (2016), respectively. These two measurements are designed to assess the satisfaction levels of the participants regarding their bodies. However, Stronge et al. (2015) chose to pull specific questions out from the New Zealand Attitudes and Values Study, which was conducted prior to this study in order to assess multiple aspects of New Zealand residents' lives. Although each study was geared towards a different type of SNS and may have had differing measurements for variable assessments, the results were similar; body dissatisfaction was found among users who had spent more time on various SNS.

Additionally, each piece of research was also conducted in a different geographic location, implying that body dissatisfaction may be a more common issue, globally. Since culture plays a crucial role in the perception and feelings about people's own bodies (Pauk et al., 2014), diverse cultures found throughout the world may show varying effects in terms of research on body dissatisfaction. However, in this case, findings seemed to be alike for the areas of New Zealand, Northern Italy, and the Netherlands.

Previous Research in Males' Body Dissatisfaction and SNS Use

Research in this field was limited for men, meaning that the studies conducted in which the samples only consisted of men were scarce. Even so, the bodies of research were not as straightforward as the previously mentioned studies were and/or did not provide enough evidence to suggest generalizability across all men. Authors Griffiths et al. (2018), Fatt et al. (2019), and Breslow et al. (2019) are examples of this.

Fatt et al. (2019) chose to observe how frequent searches of “fitspiration” content on Instagram would affect men’s body dissatisfaction. Fitspiration content includes images of thin and muscular body types and messages meant to encourage dieting and exercise for the goal of an idealized appearance (Boepple & Thompson, 2016). Contrary to the researchers’ hypothesis, the frequency of viewing the “fitspiration” hashtag on Instagram did not relate to the participants’ body dissatisfaction. It is implied that this is due to only one-third of the images found within this hashtag being focused on females, thus not having a direct effect on the participants’ own body satisfaction. However, results did discover that frequent viewing of the fitspiration hashtag on Instagram did associate with internalization of the ideal muscular body type, creating additional appearance comparisons. For this particular piece of research, the specificity of viewing frequency for the fitspiration trend may not have been ideal in determining the

association of body dissatisfaction and general SNS use frequency as the researchers only focused on this one specific trend within SNS (Fatt et al., 2019).

Both Griffiths et al. (2018) and Breslow et al. (2019) studied the relationship between SNS use frequency use and body dissatisfaction among samples of sexual minority men. The results for each were found to be consistent with previous research, in which higher frequency of SNS use was also met with higher levels of body dissatisfaction. Although, there was an important difference to point out between the two. Griffiths et al. (2018) studied the effects of multiple SNS, including Facebook, Snapchat, Twitter, YouTube, Instagram, Tumblr, and more. Breslow et al. (2019) chose to take a slightly different approach and study the effects of mobile dating applications on body dissatisfaction. As previously mentioned, dating applications are considered to be SNS; however, previous research on dating apps, like Tinder, are limited (Strubel & Petrie, 2017).

Given Breslow et al. (2019) and Griffiths et al. (2018)'s focus on sexual minority men, their findings suggest that this sub-population of men struggle more with body dissatisfaction than heterosexual men. Frederick and Essayli (2016) examined the difference in body dissatisfaction between heterosexual men and gay men and concluded that gay men reported less body satisfaction than heterosexual men. The researchers also noted that gay men seek partners who are more appearance-discriminating than the partners that heterosexual men seek and believed that this could contribute to gay men experiencing more body

dissatisfaction and pressure to be attractive than heterosexual men. Homosexual men may also wish to achieve a more masculine body type in an effort to challenge those that stigmatize and stereotype them as being less masculine than heterosexual men (Levitan et al., 2019). For these reasons, sexual minority men are a population of interest in the research field of body dissatisfaction, as shown by Griffiths et al. (2018) and Breslow et al. (2019).

Limitations of Previous Research

There are many limitations to studies completed within this topic of interest that only have males as their research sample. The first being that the majority of researchers only focused on men who identify within a sexual minority. More often now, researchers are finding a strong association between SNS and their contributions to body dissatisfaction among gay and bisexual men and men who have sex with other men (MSM), especially when compared to heterosexual men (Breslow et al., 2019; Griffiths et al., 2018). With these studies combined together, the results would not generalize the overall male population enough to represent data that is credible, meaning that it would be difficult for these results to represent men as a whole, regardless of their sexual orientation. Another limitation in these studies are the lack of specificity in the variables. Researchers have not often narrowed the SNS, or social media, variable enough as many of them include media as a whole. In one study, Carper et al. (2010) focused on the impact of television, film, and other various types of

advertisements on men's body dissatisfaction. This study did not, unfortunately, concentrate on SNS use as the media variable of choice. Although the findings did suggest an association between the media and body dissatisfaction, SNS were not included as part of their media variable. Some researchers did not even choose to focus on any type of media outlet and have used other variables, such as social comparison, in which people place judgements on themselves through personal comparisons to others who they perceive as better than them (Dryer et al., 2016; Hobza et al., 2007).

As mentioned previously, many studies that do choose to include men in their sample are usually in combination with women as well. However, when completing a search of previous studies, more than double the amount of studies that include men (men-only or in combination with women) are studies with only women. Plenty of research has been conducted regarding body dissatisfaction and SNS use for women-only samples. Although research in this field for men is limited, and studies are not as generalized to all men, results of completed studies do show some similar findings as found in those with women.

In the few cases of research studies in which the sample is comprised only of men, there are commonalities across findings. However, the lack of research conducted solely with this gender group only contributes to the lack of probability that these results are consistent for the general male population. The question of why men are not being studied to the extent of women is then asked. One possible

reason may be due to men's lack of contribution to this field of research as talk of body dissatisfaction tends to be more taboo among men than women. When discussing why men fail to seek help after discovering that they have an eating disorder, an illness that is often the result of experiencing body dissatisfaction, Drummond (2002) assumed that it was the fault of how masculinity has been socially constructed within contemporary Western culture.

The belief that being bigger in size and having more muscles in order to be considered "masculine" is a pervasive theme in U.S. culture (Lorber & Martin, 2007). Both men and women strive to feel accepted by members of society and, in doing so, may drastically alter the way their bodies are shaped. It is an interesting implication to think about as this information emphasizes how society, not one's biological makeup, determine what is proper for how a man's body and a woman's body should look. Additionally, those that follow this construct feel that they must do so in order to avoid other members of society from thinking less of them or from being ridiculed.

Another aspect of society's definition for masculinity is the repression of men's emotions. From childhood, boys have been encouraged to restrain themselves from expressing vulnerability in order to prevent negative reactions from others who may then question their masculine identity (Jakupcak et al., 2005). Overall, this could create the assumption that if a man were to experience body dissatisfaction as a result of not complying with societal standards, they may

not express this issue or any related issue, such as the possibility of having an eating disorder.

In any case, there are not many options for future studies to prevent this deficiency from continuing in research. Researchers may want to conduct experimental designs in which the participants consist only of men or another option is to conduct a meta-analysis of these previous studies that include men in order to reach a more summarized result for this specific gender group.

Meta-Analysis

In the following section, the paper will discuss what a meta-analysis is and why conducting a meta-analysis for this particular field of research would be beneficial.

A meta-analysis in psychological research aims to integrate results from previous studies in order to create a summary about the findings of a given topic (Sanchez-Meca & Marin-Martinez, 2008). This type of research design also uses the effect sizes from those studies which are then statistically analyzed in order to discover an average estimate of the effects across the studies (Sanchez-Meca & Marin-Martinez, 2008). Due to the limitation of most studies consisting of only men having samples that identify within the sexual minority group, a meta-analysis would have the ability to utilize that data, as well as data from men used in the combined gender studies, and integrate the results to create a larger sample of men who represent the more general male population. Conducting a meta-

analysis for this topic of research would also be beneficial in allowing the researcher to combine statistical power among studies, thus increasing the likelihood of reaching statistical significance. In some studies, regardless of the samples consisting of men only, women only, or combined gender, the level of power is not large enough to be considered statistically significant (Fatt et al., 2019). Therefore, the overall collection of data across all studies will ensure that the power level is substantial enough to extend the probability of statistical significance. This method will also attempt to avoid the common limitation that researchers state have occurred of being unable to collect a more appropriate amount of participants for their study.

Current Study

In this final section of the literature review, it will be discussed how this paper plans on contributing to this field of research and what is expected to be discovered in it's findings.

The current study will be a meta-analysis that combines research results within the topic of SNS use impact on body dissatisfaction among men and women in an effort to compare said impact between the two genders. Considering the difference in definition of body image and body dissatisfaction, the current study will only focus on body dissatisfaction. This is because body image is a much broader term which can allow for a person to have a more subjective sense of their own body; either positive or negative body image. Body dissatisfaction

specifically includes a person's negative thoughts about their own body, meaning that it would be impossible for someone to experience body dissatisfaction and have a positive body image. However, some studies will state that their variable is body image, although their goal is to discover SNS impact on having a negative body image. Therefore, studies that state this similar term will also be included in the meta-analysis.

Similarly to the difference between body image and body dissatisfaction, social media and SNS are often terms that are stated and said interchangeably. The Cambridge Dictionary defines a SNS and social media as any website where users can communicate and share information with others ("social networking site," 2019; "social media," 2019). However, according to Techopedia (n.d.), a SNS is an online platform that allows users to connect and interact with other users on the same platform. Sites like Facebook allow this on a more personal basis, whereas LinkedIn allows for this connection on a more professional establishment. However, both sites are considered SNS. Social media is then defined as also allowing for this same connection as SNS, but is also combined with the ability to share content of all types online. Although some SNS can also do that, it is not necessarily the goal of the site to create and share content (Techopedia, n.d.). For the purpose of simplicity in the current study, SNS will be the main variable used. However, studies that use social media as their variable instead of SNS may be observed and taken into consideration.

Due to the lack of studies that include only men in their samples, this meta-analysis will be gathering results from all studies that include men, even when combined with women. This is because results from women will also be looked at in order to make the comparison between these genders. The goal of the current study is not to create an emphasis on the topic for just men, but to relate the impact that SNS have on their body dissatisfaction with women, a population group that is already commonly researched. Therefore, due to the lack of inclusivity of men in this field of research and the lack of power in studies that do include men, the current study hypothesizes the following:

Hypothesis 1: It is predicted that both men and women will report a significant impact of SNS use on their levels of body dissatisfaction.

Hypothesis 1a: Due to the higher amount of research that is conducted on women having found a significant relationship between the two main variables, it is predicted that women will have reported a stronger impact than that of men.

Method

Search Strategies

For this meta-analysis, there were three main research databases that were used in order to find previous studies that had looked at the association between social media/SNS use and body dissatisfaction of men and women. The three databases were PsycINFO, Scopus, and Google Scholar. Key terms that were used for the searching process included: body image or body dissatisfaction, social media or social networking sites or SNS, body dissatisfaction and social networking sites, and body image and social media. The range of publication years was between 2015 and 2019. It was difficult to find previous research studies prior to 2015 considering SNS use is a fairly new interest in both history and psychological research.

Eligibility Criteria

To be considered for this meta-analysis, studies needed to include the following criteria: (1) participants must have completed an assessment measuring body image concerns or body dissatisfaction, and (2) subjects needed to answer questions regarding the frequency of their SNS usage. Studies also needed to include both men and women in their participant pool; however, studies that included only men as subjects and studies that included only women as subjects were also collected in order to increase power within both gender groups. An association between SNS use and body dissatisfaction must have been evaluated

as well in order to be considered (e.g., studies containing assessments of both SNS use and body dissatisfaction, but that focus on the impact of a third variable, such as photo-editing or frequency of posting, were not considered). An example of this association would be a correlation value between SNS use frequency and body dissatisfaction. SNS has become increasingly popular since their creation from a little more than two decades ago; therefore, research in this field is not as substantial as other common fields. For this reason, there were not many exclusion criteria when determining choice of studies. However, there were many studies that focused on overall media's influence on body dissatisfaction, which included television and film, advertisements, and other non-SNS media platforms. Any encounter of these studies were excluded as they typically did not include social media or SNS with their media variable. Studies that included the variables like "self-esteem" or "self-worth" instead of "body image" or "body dissatisfaction" were also excluded due to its definition being much broader in relation to the latter two terms. In addition, only studies that were written in the English language were included for this study.

Data Abstraction and Coding

The initial search of the terms above yielded a total of 78 studies. After reviewing the titles and abstracts of each study, 55 studies were then removed to narrow the search to only 23 studies. After reviewing the inclusion criteria mentioned above, 7 studies were removed, making the new total to then be 16

studies. After reviewing the exclusion criteria also mentioned above, 6 more studies were then removed, which then brought the total number of studies to be 10. After a final full-text review, two studies were excluded for using a qualitative approach and not containing available information to calculate effect sizes. The final number of studies used to complete the current meta-analysis was 8 studies along with 48 effect sizes total. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) chart with the final number of studies is presented in Figure 1.

Moderators

Three moderators were included in this meta-analysis. A moderator is a variable that can alter the impact or the direction of the relation between a predictor and an outcome (Frazier et al., 2004). Since this meta-analysis will be looking to compare SNS' impact on body dissatisfaction between men and women, gender was an important moderator to consider and include for this study. As mentioned in the previous chapter, the number of studies containing only women are substantial compared to the number of studies with only men (Baker et al., 2019). Therefore, it will be interesting to record the difference in impact between these two gender groups as gender alone may have an influence on the overall outcome. For this meta-analysis, the proportion of men were pulled from each study. For example, if the study included only men in their sample,

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) chart of literature search for body dissatisfaction and SNS use.

then the proportion was 100%, or if the study included 40 men with 60 women, then the proportion of men would be 40%. Age is another moderator to be considered as it is also possible for certain age groups to have differences in impact than others. This may be due to social media and SNS use possibly being more frequently associated with younger generations since SNS have not been existing for long (Pew Research Center, 2019). Therefore, age groups would also be monitored in this meta-analysis. For this, the mean age was collected from each study and included in the data analysis. Both gender and age would be moderators that are categorized as qualitative moderators.

The type of measurement would also be a moderator in this meta-analysis as some of the included studies contain measurements with the purpose of assessing body dissatisfaction. For example, Marengo et al. (2018) used the Body Shape Questionnaire (BSQ) to assess body dissatisfaction. One sample item was, "Have you been so worried about your shape that you have been feeling you ought to diet?" However, other studies include questions that were derived from much broader questionnaires and surveys that focused on multiple factors, not just one. For example, Stronge et al. (2015) used the New Zealand Attitudes and Values Study, which contained multiple questions about social attitudes, personality, and health outcomes. For body dissatisfaction, participants were asked to rate their response to one item: "I am satisfied with the appearance, size,

and shape of my body.” Therefore, the differences in origin of questions may moderate the impact recorded within the included studies of this meta-analysis.

Software Analysis

For this meta-analysis, R software was used to conduct all statistical analyses (R Core Team, 2019). The main purpose for using R was that the software can easily compute various types of results for meta-analyses such as the pooling of effect sizes in various forms, publication bias, and moderator analysis. The ‘metafor,’ ‘robumeta,’ and ‘dplyr’ packages were all used in R to assist with the statistical analysis (Fisher et al., 2017; Viechtbauer, 2010; Wickham et al., 2018). Specifically, ‘metafor’ and ‘robumeta’ assist with the calculation and synthesis of effect sizes (Pustejovsky, 2015) whereas ‘dplyr’ assists with general data manipulation (Wickham & Grolemund, 2017).

Statistical Analysis

An identification number was assigned to each study that was collected for this meta-analysis. Along with that, each effect size within each study was also assigned an identification number. The lowest number of effect sizes in the group of studies was one, whereas the highest number of effect sizes from the group of studies was thirty-six. The following information was then collected and coded from each study: effect size value, SNS type (Facebook, Instagram, Snapchat, etc.), the total number of the sample, mean age, gender proportion, and type of measurement (0 = measurement designed to only assess body

satisfaction/dissatisfaction, 1 = body satisfaction/dissatisfaction subscale of larger measurement). One specific study contained additional information on type of body dissatisfaction (body fat, muscularity, and height) that was also collected and coded as 1, 2, and 3, respectively. SNS type was also coded into three different categories: visual, textual, and mixed. Visual SNS consists of content that is produced mainly of images and videos. Textual SNS consists of content that is produced mainly of text that is typed out. Mixed SNS consists of both media and text content. Sites like Instagram and Snapchat were categorized into the visual code while sites like Facebook and Tumblr were categorized into the mixed code. The textual code consists of sites like LinkedIn and BlogSpot.

The first set of codes were run in order to pool the effect sizes provided from the correlations within the studies. These effect sizes were then transformed into Fisher's Z scores and sampling variance was also computed from those scores. Since the effect sizes were correlations in each of the studies used, syntheses could not be performed as the variance depends so strongly on the correlation. This is why each correlation was converted into a Fisher's Z score.

Using the random effects model provided the general results, including the pooled effect size, standard error of pooled effect size, confidence interval, and *p*-value. The robustness variance estimation (RVE) method was included as this study contained dependent effect sizes and standard error estimation was to be improved by using residual terms. To conclude the analysis, publication bias was

also checked in the form of a funnel plot and trim-and-fill plot. Both Rosenthal's and Orwin's Fail-Safe N were then computed to address publication bias.

Results

The information included from the eight studies used consisted of the following: total sample size, number of effect sizes, proportion of men, mean age, and type of measurement. Table 1 displays this information along with other details.

Pooled Effect Size

Table 2 provides the results for the pooled effect size after using the random effects model. With a total of eight studies containing 48 effect sizes, the pooled effect size is 0.056 with a 95% confidence interval from 0.040 to 0.072. Since the p -value ($< .0001$) is found to be significant, this result interprets that there is a significant positive relationship between SNS use frequency and body dissatisfaction among the studies used. That is, SNS use frequency does seem to have an impact on levels of body dissatisfaction. Figure 2 also represents this data in the form of a Forest plot in order to view the effect sizes of the studies in a more visual suggestion.

The RVE method was also used for this meta-analysis in order to improve standard error estimation when pooling dependent effect sizes. The results of the RVE method can be shown in Table 3. The pooled effect size has changed to 0.075 with a 95% confidence interval from 0.036 to 0.016 and a significant p -value of 0.00374.

Table 1. Sample Characteristics

Authors	Study ID	Year Published	Total Sample	Number of Effect Sizes	Proportion of Men	Mean Age	Type of Measurement
Breslow et al.	1	2019	230	1	1	31.02	0
de Vries et al.	2	2016	604	1	0.493	14.7	0
Fatt et al.	3	2019	118	1	1	31.02	0
Griffiths et al.	4	2018	2,733	36	1	33.93	0
Howard et al.	5	2017	922	3	0	21	0
Marengo et al.	6	2018	523	2	0.465	14.82	0
Saunders & Eaton	7	2018	637	3	0	21.3	1
Stronge et al.	8	2015	11,017	1	0.375	49.23	1

Note. For “Type of Measurement, 0 is coded for measurements that assess for multiple variables whereas 1 is coded for measurements that assess for body dissatisfaction only.

Table 2*Pooled effect size (using random effects model)*

Estimate	StdErr	z-value	p-value	95% C.I.L	95% C.I.U
0.056	0.008	6.768	<.0001	0.040	0.072

Note. Standard Error is abbreviated as “StdErr,” the lower end of the 95%

confidence interval is shown as “95% C.I.L” and the upper end of the 95%

confidence interval is shown as “95% C.I.U.”

Figure 2*Forest plot*

Table 3*Pooled effect size (using RVE method)*

Estimate	StdErr	t-value	dfs	p-value	95% CI.L	95% CI.U
0.075	0.016	4.67	5.8	0.004	0.036	0.115

Note. Standard Error is abbreviated as “StdErr,” degrees of freedom is

abbreviated as “dfs,” the lower end of the 95% confidence interval is shown as

“95% CI.L,” and the upper end of the 95% confidence interval is shown as “95% CI.U.”

Test of Heterogeneity

In order to determine if the studies in this meta-analysis have systematic variability, a test for heterogeneity was computed with Q -statistics. The reported Q -value was 329.014 with a value of 47 for the degrees of freedom (df) and a significant p -value of $<.0001$. Since the Q -value is much larger than the degrees of freedom, and the p -value is significant, it is safe to say that heterogeneity does exist and that the studies used for this meta-analysis do have systematic variability.

Moderator Analysis

For this particular meta-analysis, a meta-regression was conducted during the moderator analysis portion of the statistical analysis. The goal of this analysis was to determine if the three moderators (age, gender, and type of measurement) did, in fact, have an effect on the results of the relationship between SNS use

frequency and body dissatisfaction. Before doing so, the means of male proportion and age were centered (Male Percentage = 0.830, Mean Age = 31.091, Measure Type = 0.083). Table 4 provides the results for this moderator analysis. As shown by the p -values in the table, none of the three moderators were within significance level, as all p -values were found to be greater than 0.05. The gender moderator reported a p -value of 0.95, the age moderator reported a p -value of 0.66, and the measurement type moderator reported a p -value of 0.61. Since each of these moderators reported no significance, it is assumed that there is no evidence of the moderators contributing to the relationship between the two variables.

Table 4

<i>Moderator Analysis</i>							
	Estimate	StdErr	t-value	dfs	p-value	95% C.I.L	95% C.I.U
Intercept	0.044	0.023	1.929	2.45	0.170	-0.039	0.127
Male Percentage	-0.009	0.137	-0.069	1.65	0.952	-0.737	0.718
Mean Age	-0.499	0.003	-0.499	2.14	0.664	-0.014	0.011
Measure Type	0.606	0.108	0.606	1.79	0.613	-0.455	0.585

Note. Standard Error is abbreviated as “StdErr,” degrees of freedom is

abbreviated as “dfs,” the lower end of the 95% confidence interval is shown as

“95% C.I.L,” and the upper end of the 95% confidence interval is shown as “95%

C.I.U.”

Specifically, this means that there was no significant difference in results between men and women, nor were there significant differences in results across the various age means. Lastly, regardless of the type of measurement that the study used, the relationship between SNS use and body dissatisfaction was still positively related.

Publication Bias

To determine publication bias in this meta-analysis, a funnel plot, trim and fill plot, and two fail-safe N analyses were computed. Figure 3 represents the results of the Funnel Plot computed. As shown, the majority of the studies have a much larger sample size as they are clearly fixated more towards the top of the model. Since the bottom left region of the model is not completely empty as there is one effect size present, and since the bottom right region is also mostly empty, this indicates that there may be little or no publication bias for this group of studies, especially since the effect sizes on the model are symmetrical, even if fixated more towards the top region.

A trim and fill plot was also conducted in order to determine if there were any studies missing in the funnel plot and to assure the symmetry of the plot.

Table 5 shows the results from this analysis. The table explains that there are no

estimated number of missing studies on the left side of the plot. Since there are no missing studies, the adjusted pooled effect size (0.056) remains the same. It is important to note that this is the adjusted pooled effect size when computing a random effects model and not the actual pooled effect size of this meta-analysis as that was computed through the RVE method.

Figure 3

Funnel plot

Table 5*Trim and Fill Plot*

Estimate	StdErr	z-value	p-value	95% CI.L	95% CI.U
0.056	0.008	6.768	< .0001	0.040	0.072

Note. Standard Error is abbreviated as “StdErr,” the lower end of the 95%

confidence interval is shown as “95% CI.L” and the upper end of the 95%

confidence interval is shown as “95% CI.U.”

Finally, both Rosenthal’s and Orwin’s Fail-safe N analyses were completed in order to contribute towards the possibility of publication bias. According to Rosenthal’s Fail-safe N results, there would need to be about 5,582 more studies with a mean effect size of zero to have a statistically non-significant pooled effect size. With Orwin’s Fail-safe N results, there would need to be 233 more studies with a mean effect size of zero added to the analysis before the pooled effect would become trivial. The cutoff value was computed by the following formula: $N < 5 \times (48 \text{ effect sizes}) + 10 = 250$ studies. Since Rosenthal’s Fail-safe N (5,582) does not fit into the formula, but Orwin’s Fail-safe N (233) does, this typically would indicate a possibility of publication bias. However, the results of the trim and fill method showed the exact same pooled effect size, even after adjustment. Thus, it can be concluded that the possibility of publication bias is low.

Discussion

The current study aimed to collect data that was previously collected from researchers in regards to the association between SNS use and body dissatisfaction. With a total of eight studies collected, the majority of the studies used for this meta-analysis found positive correlations between the two variables observed. In addition, the current study observed differences in gender, age, and type of measurement as moderators in order to identify possible impacts that these moderators may have influenced in the overall results. Of the eight studies, three of them contained samples that consisted of men only, two studies contained samples that consisted on women only, and three studies contained samples that consisted of both men and women. Six of the eight studies contained measurements that were specifically designed to assess for body dissatisfaction, while the other two studies assessed for body dissatisfaction through specific items within a much larger questionnaire. The mean age range among the studies was between 14.7 and 49.2. The current study hypothesized that although both gender groups would report a positive correlation between SNS use and body dissatisfaction, women would experience a much higher impact than men.

Findings

The findings of this meta-analysis provided evidence of a positive correlation found between SNS use frequency and body dissatisfaction as the summarized effect size among all eight studies has shown (0.075). This result

aligns well with reports from other research studies in the past (Breslow et al., 2019; de Vries et al., 2016; Griffiths et al., 2018; Howard et al., 2017; Marengo et al., 2018; Saunders and Eaton, 2018; Stronge et al., 2015). Although this result differs from the results conducted by Fatt et al. (2019), it should be recalled that their study used a different approach in assessing SNS use frequency as that variable was specific towards the frequency of viewing one particular Instagram hashtag rather than overall SNS use frequency.

This meta-analysis also tested whether gender, age, and type of measurement given had impacted the outcome of the results. According to the findings, none of those moderators were found to be significant, therefore, they did not make a difference in the results. Previous studies in the same field of research has shown mixed results in terms of gender differences. de Vries et al. (2016) concluded that adolescent boys were affected by SNS use to the same extent as girls whereas Marengo et al. (2018) reported that females had higher body image concerns than the males. Due to this insignificance, the proposed hypothesis in the current study was not met as the impact of SNS use on body dissatisfaction was not impacted by gender. In regard to age differences, Stronge et al. (2015) found that middle-aged women that used Facebook experienced significantly lower levels of body satisfaction than both older and younger women. Not many other studies reported the difference in impact among age groups as most researchers focused on one particular age group. Considering the

type of measurement provided in these studies, none of them had reported the possibility of measurement type impact on their results.

Publication bias was also assessed to ensure that the studies included in this meta-analysis did not differ systematically from all studies that should have been included. Results indicated that there was no sign of publication bias based on the funnel plot that was computed and both Rosenthal's and Orwin's Fail-safe N analyses. In other words, the concern that this sample of studies included in this meta-analysis would be biased is nonexistent and their summarized effect size is not overestimated, according to the results.

Limitations

There were a few limitations in this meta-analysis that may have affected the overall results. The first being that there was one study out of the eight that carried the majority of the 48 effect sizes (Griffiths et al., 2018). Since this study had 36 effect sizes, the results may not have been as much of a summary across all eight studies. The reason for this study having so many effect sizes is because there were three different types of body dissatisfaction recorded (height dissatisfaction, muscularity dissatisfaction, and body fat dissatisfaction) along with twelve different SNS, each being correlated between each other.

The next limitation is that the majority of the studies had a very large sample size. As seen in Figure 3, the funnel plot showed that most studies were nested towards the top of the model, indicating that they all had larger sample

sizes. The largest sample size of the included studies was just over 11,000 participants that were located in New Zealand as part of a much larger survey that assessed multiple factors (Stronge et al., 2015). Although the current study used the RVE method to try and combat this issue through weighting and handling of multiple effect sizes, the method does not promise to solve this issue each time it is used.

The final limitation is that these results may not be representative of the general population. For instance, two of the three studies that contained male-only samples consisted of sexual minority men (Breslow et al., 2019; Griffiths et al., 2018). Therefore, generalization cannot be confirmed here as the sample of men in this meta-analysis were not diverse. It would not be safe to say that these results can be suggested for heterosexual men as well without additional research being conducted for that group.

Implications for Future Research

Regarding the previously mentioned limitations of this meta-analysis, there are multiple additions to this field of research that should be included in order to discover the best fitting results. In general, studies showing this relationship between SNS use and body dissatisfaction of both men and women are limited, particularly for men. More research is necessary to better understand the impacts that exists with high SNS usage. Of the research that is available, women have typically been the focus of studies conducted as men do not appear

often as participants for these studies (Baker et al., 2019). Future research should consider increasing the involvement of men for additional findings that may shed light on an underrepresented group of people since body dissatisfaction is not commonly discussed regarding this specific gender group.

Other moderators may need to be considered if future researchers continue to focus on this problem. Although the moderators chosen for this meta-analysis were appropriate, moderators like race/ethnicity or school/work/living area seem to also be a possibility in the effects of impacting SNS use on body dissatisfaction. Researchers know that culture can have a heavy influence on beauty ideals and how these views can change over time, especially in Western culture (Warren, 2014). Therefore, it may be expected that the impact of SNS use on body dissatisfaction could differ among participants based on their geographic location. Also, certain racial/ethnic groups have expressed higher reports of body dissatisfaction more than others (van den Berg et al., 2010). Using race/ethnicity as a moderator would benefit researchers in evaluating the racial differences that occur when observing how SNS use impacts body dissatisfaction.

As a final suggestion, future research or meta-analyses in this field should conduct a statistical power analysis in order to determine the most appropriate sample size for their study. Sample sizes can play an important role in how results are computed. Smaller sample sizes may not reflect accurate information and cannot be generalized for others. Each of the eight studies that was included in

this meta-analysis did not report having conducted any sort of statistical power analysis in order to reach the number of participants included in their study.

Doing so would allow researchers to require the appropriate number of participants that would lead to meaningful results (Cunningham & McCrum-Gardner, 2007).

Other Implications

The findings of the current study may also provide suggestions for work outside of research. In terms of counseling and psychological services, clinicians should provide their clients with a pre-assessment prior to their initial consultation and include questions relating to their clients' levels of body dissatisfaction, if not doing so already. This alone may initiate additional conversations about the issue between the therapist and the client and/or allow the therapist to make a proper referral for the client. Particularly for men, this may increase the visibility of those that cope with issues of body dissatisfaction, which could also display a clear need for additional resources and services dedicated to assisting men who struggle with this matter.

Programs aimed at educating children and young adults about the many effects of SNS overuse would also be highly beneficial. Schools including such a requirement as part of their curriculum may be able to address the issue early on as children under the age of 18 are the age group that uses SNS the most in the United States (Pew Research Center, 2019). As previously mentioned, there are

numerous negative effects from increased SNS use, including body dissatisfaction. Targeting children while they are young and providing education on proper SNS use would allow for early intervention in preventing them from developing any of these types of effects as adults.

Conclusion

Since the introduction of SNS, researchers have observed their effects on various populations. Although they have found multiple positive effects, it is important to consider what negative effects there are as well. This research will help outline how to combat those effects and provide more clarification in how these possible solutions may be influenced towards other fields of research. The range of possible negative effects that SNS have is quite wide. With body dissatisfaction being included in this range, researchers must realize the influence that it has within the umbrella of one's own mental health. Although research has already made the connection between SNS use and body dissatisfaction, there are a few aspects not yet covered in this field that would need additional attention before determining just how much this level of impact can be detrimental to various groups in society. This includes additional observation into the effects that are placed on men and determining what it is exactly that allows high SNS usage to contribute to higher levels of body dissatisfaction. As previously mentioned, this is a fairly new field of research, so there needs to be additional time allowed to answer these questions.

This meta-analysis would hopefully allow future researchers to not only continue the trajectory of this research field, but also to continue to ask questions as they relate to SNS use frequency and body dissatisfaction. Then, the overall goal would be to creating some prevention strategies so that these adverse effects are limited among different societal groups around the world. It is the goal of the current study to initiate the discussion revolving around the correlation of SNS use frequency and body dissatisfaction as this is one of few, if any, meta-analyses that have been able to gather the work of others and evaluate various pieces in a synthesized manner. Although the inclusion of the moderators were not found to be significant, the realization that this occurrence could possibly be due to the scarce amount of research in this field would hopefully provide enough evidence and reason to address this issue and provide more work and effort into future research.

References

- Baker, J. H., Higgins Neyland, M. K., Thornton, L. M., Runfol, C. D., Larsson, H., Lichtenstein, P., & Bulik, C. (2019). Body dissatisfaction in adolescent boys. *Developmental Psychology*, 55(7), 1566–1578. <https://doi-org.ezproxy.callutheran.edu/10.1037/dev0000724.supp>
- Balswick, J. O., & Peek, C. W. (1971). The inexpressive male: A tragedy of American society. *The Family Coordinator*, 20(4), 363–368. <https://doi-org.ezproxy.callutheran.edu/10.2307/582167>
- Boepple, L., & Thompson, J. K. (2016). A content analytic comparison of fitspiration and thinspiration websites. *International Journal of Eating Disorders*, 49(1), 98–101. <https://doi-org.ezproxy.callutheran.edu/10.1002/eat.22403>
- Breslow, A. S., Sandil, R., Brewster, M. E., Parent, M. C., Chan, A., Yucel, A., Bensmiller, N., & Glaeser, E. (2019). Adonis on the apps: Online objectification, self-esteem, and sexual minority men. *Psychology of Men & Masculinities*, 21(1), 25–35. <https://doi-org.ezproxy.callutheran.edu/10.1037/men0000202>
- Carper, T. L. M., Negy, C., & Tantleff-Dunn, S. (2010). Relations among media influence, body image, eating concerns, and sexual orientation in men: A preliminary investigation. *Body Image*, 7(4), 301–309. <https://doi-org.ezproxy.callutheran.edu/10.1016/j.bodyim.2010.07.002>

- Cole-Black, A. (2018, November 1). The Purpose of Memes. Retrieved from <https://wybeaconnews.org/9482/showcase/the-purpose-of-memes/>
- Cunningham J. B. & McCrum-Gardner, E. (2007). Power, effect and sample size using GPower: Practical issues for researchers and members of research ethics committees. *Evidence Based Midwifery* 5(4), 132-136.
- Pew Research Center. (2019, June 12). Demographics of Social Media Users and Adoption in the United States. Retrieved from <https://www.pewresearch.org/internet/fact-sheet/social-media/>.
- de Vries, D. A., Peter, J., Graaf, H., & Nikken, P. (2016). Adolescents' social network site use, peer appearance-related feedback, and body dissatisfaction: Testing a mediation model. *Journal of Youth and Adolescence*, 45(1), 211–224. <https://doi-org.ezproxy.callutheran.edu/10.1007/s10964-015-0266-4>
- Drouin, M., Miller, D., Wehle, S. M. J., & Hernandez, E. (2016). Why do people lie online? “Because everyone lies on the Internet.” *Computers in Human Behavior*, 64, 134–142. <https://doi-org.ezproxy.callutheran.edu/10.1016/j.chb.2016.06.052>
- Drummond, M. J. N. (2002). Men, Body Image, and Eating Disorders. *International Journal of Men's Health*, 1(1), 89–103. <https://doi-org.ezproxy.callutheran.edu/10.3149/jmh.0101.89>
- Dryer, R., Farr, M., Hiramatsu, I., & Quinton, S. (2016). The role of sociocultural

- influences on symptoms of muscle dysmorphia and eating disorders in men, and the mediating effects of perfectionism. *Behavioral Medicine*, 42(3), 174–182. <https://doi-org.ezproxy.callutheran.edu/10.1080/08964289.2015.1122570>
- Fatt, S. J., Fardouly, J., & Rapee, R. M. (2019). #malefitspo: Links between viewing fitspiration posts, muscular-ideal internalisation, appearance comparisons, body satisfaction, and exercise motivation in men. *New Media & Society*, 21(6), 1311–1325. <https://doi-org.ezproxy.callutheran.edu/10.1177/1461444818821064>
- Fisher, Z., Tipton, E., & Zhipeng, H. (2017). robumeta: Robust Variance Meta-Regression. R package version 2.0. <https://CRAN.R-project.org/package=robumeta>
- Fleck, J., & Johnson-Migalski, L. (2015). The impact of social media on personal and professional lives: An Adlerian perspective. *The Journal of Individual Psychology*, 71(2), 137–142. <https://doi-org.ezproxy.callutheran.edu/10.1353/jip.2015.0013>
- Forbes, G. B., Adams-Curtis, L. E., Rade, B., & Jaberg, P. (2001). Body dissatisfaction in women and men: The role of gender-typing and self-esteem. *Sex Roles: A Journal of Research*, 44(7–8), 461–484. <https://doi-org.ezproxy.callutheran.edu/10.1023/A:1011982112899>
- Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and

- mediator effects in counseling psychology research. *Journal of Counseling Psychology*, 51(1), 115–134. <https://doi-org.ezproxy.callutheran.edu/10.1037/0022-0167.51.1.115>
- Frederick, D. A., & Essayli, J. H. (2016). Male body image: The roles of sexual orientation and body mass index across five national US studies. *Psychology of Men & Masculinity*, 17(4), 336–351. <https://doi.org/10.1037/men0000031>
- Fuller-Tyszkiewicz, M., Chhouk, J., McCann, L.-A., Urbina, G., Vuo, H., Krug, I., Ricciardelli, L., Linardon, J., Broadbent, J., Heron, K., & Richardson, B. (2019). Appearance comparison and other appearance-related influences on body dissatisfaction in everyday life. *Body Image*, 28, 101–109. <https://doi-org.ezproxy.callutheran.edu/10.1016/j.bodyim.2019.01.002>
- Ganem, P. A., de Heer, H., & Morera, O. F. (2009). Does body dissatisfaction predict mental health outcomes in a sample of predominantly Hispanic college students? *Personality and Individual Differences*, 46(4), 557–561. <https://doi-org.ezproxy.callutheran.edu/10.1016/j.paid.2008.12.014>
- Griffiths, S., Murray, S. B., Krug, I., & McLean, S. A. (2018). The contribution of social media to body dissatisfaction, eating disorder symptoms, and anabolic steroid use among sexual minority men. *Cyberpsychology*,

Behavior, and Social Networking, 21(3), 149–156. <https://doi-org.ezproxy.callutheran.edu/10.1089/cyber.2017.0375>

Heider, N., Spruyt, A., & De Houwer, J. (2018). Body dissatisfaction revisited: On the importance of implicit beliefs about actual and ideal body image. *Psychologica Belgica*, 57(4). <https://doi-org.ezproxy.callutheran.edu/10.5334/pb.362>

Hobza, C. L., Walker, K. E., Yakushko, O., & Peugh, J. L. (2007). What about men? Social comparison and the effects of media images on body and self-esteem. *Psychology of Men & Masculinity*, 8(3), 161–172. <https://doi-org.ezproxy.callutheran.edu/10.1037/1524-9220.8.3.161>

Howard, L. M., Heron, K. E., MacIntyre, R. I., Myers, T. A., & Everhart, R. S. (2017). Is use of social networking sites associated with young women's body dissatisfaction and disordered eating? A look at Black–White racial differences. *Body Image*, 23, 109–113. <https://doi-org.ezproxy.callutheran.edu/10.1016/j.bodyim.2017.08.008>

Jakupcak, M., Tull, M. T., & Roemer, L. (2005). Masculinity, shame, and fear of emotions as predictors of men's expressions of anger and hostility. *Psychology of Men & Masculinity*, 6(4), 275–284. <https://doi-org.ezproxy.callutheran.edu/10.1037/1524-9220.6.4.275>

Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H.,

- Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PLoS ONE*, 8(8).
- Levitan, J., Quinn-Nilas, C., Milhausen, R., & Breuer, R. (2019). The relationship between body image and sexual functioning among gay and bisexual men. *Journal of Homosexuality*, 66(13), 1856–1881. <https://doi-org.ezproxy.callutheran.edu/10.1080/00918369.2018.1519301>
- Lin, J.-S., Lee, Y.-I., Jin, Y., & Gilbreath, B. (2017). Personality traits, motivations, and emotional consequences of social media usage. *Cyberpsychology, Behavior, and Social Networking*, 20(10), 615–623. <https://doi-org.ezproxy.callutheran.edu/10.1089/cyber.2017.0043>
- Lorber, J. & Martin, P. (2007). The Socially Constructed Body: Insights from Feminist Theory. In P. Kivisto *Illuminating Social Life: Classical and Contemporary Theory Revisited* (pp. 249-274). Thousand Oaks, CA: SAGE Publications, Inc.
- Mandiberg, M. (2012). *The Social Media Reader*. New York: New York University Press.
- Marengo, D., Longobardi, C., Fabris, M. A., & Settanni, M. (2018). Highly-visual social media and internalizing symptoms in adolescence: The mediating role of body image concerns. *Computers in Human Behavior*, 82, 63–69. <https://doi-org.ezproxy.callutheran.edu/10.1016/j.chb.2018.01.003>
- Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on

- Facebook. *Cyberpsychology, Behavior, and Social Networking*, 13(4), 357–364. <https://doi-org.ezproxy.callutheran.edu/10.1089/cyber.2009.0257>
- Pantic, I. (2014). Online social networking and mental health. *Cyberpsychology, Behavior, and Social Networking*, 17(10), 652–657. <https://doi-org.ezproxy.callutheran.edu/10.1089/cyber.2014.0070>
- Pantic, I., Damjanovic, A., Todorovic, J., Topalovic, D., Bojovic-Jovic, D., Ristic, S., & Pantic, S. (2012). Association between online social networking and depression in high school students: Behavioral physiology viewpoint. *Psychiatria Danubina*, 24(1), 90–93.
- Paulk, A., Dowd, D. A., Zayac, R., Eklund, A., & Kildare, C. (2014). The relationship between culture, geographic region, and gender on body image: A comparison of college students in the Southeast and Pacific Northwest regions of the United States. *Sociological Spectrum*, 34(5), 442–452. <https://doi-org.ezproxy.callutheran.edu/10.1080/02732173.2014.937653>
- Pustejovsky, J. E. (2015, July 10). The clubSandwich package for meta-analysis with RVE. Retrieved from <https://www.jepusto.com/clubsandwich-for-rve-meta-analysis/>
- R Core Team. (2019). *R: A Language and Environment for Statistical Computing*.

Vienna, Austria: R Foundation for Statistical Computing. Retrieved from:
<https://www.R-project.org>.

- Reich, S. M. (2010). Adolescents' sense of community on MySpace and Facebook: A mixed-methods approach. *Journal of Community Psychology, 38*(6), 688–705. <https://doi-org.ezproxy.callutheran.edu/10.1002/jcop.20389>
- Runfola, C. D., Von Holle, A., Trace, S. E., Brownley, K. A., Hofmeier, S. M., Gagne, D. A., & Bulik, C. M. (2013). Body dissatisfaction in women across the lifespan: Results of the UNC-SELF and gender and body image (GABI) studies. *European Eating Disorders Review, 21*(1), 52–59. <https://doi-org.ezproxy.callutheran.edu/10.1002/erv.2201>
- Sánchez-Meca, J., & Marín-Martínez, F. (2008). Confidence intervals for the overall effect size in random-effects meta-analysis. *Psychological Methods, 13*(1), 31–48. <https://doi-org.ezproxy.callutheran.edu/10.1037/1082-989X.13.1.31>
- Saunders, J. F., & Eaton, A. A. (2018). Snaps, selfies, and shares: How three popular social media platforms contribute to the sociocultural model of disordered eating among young women. *Cyberpsychology, Behavior, and Social Networking, 21*(6), 343–354. <https://doi-org.ezproxy.callutheran.edu/10.1089/cyber.2017.0713>
- Stronge, S., Greaves, L. M., Milojev, P., West-Newman, T., Barlow, F. K., &

- Sibley, C. G. (2015). Facebook is linked to body dissatisfaction: Comparing users and non-users. *Sex Roles: A Journal of Research*, 73(5–6), 200–213. <https://doi-org.ezproxy.callutheran.edu/10.1007/s11199-015-0517-6>
- Strubel, J., & Petrie, T. A. (2017). Love me Tinder: Body image and psychosocial functioning among men and women. *Body Image*, 21, 34–38. <https://doi-org.ezproxy.callutheran.edu/10.1016/j.bodyim.2017.02.006>
- Strubel, J., Petrie, T. A., & Pookulangara, S. (2018). “Like” me: Shopping, self-display, body image, and social networking sites. *Psychology of Popular Media Culture*, 7(3), 328–344. <https://doi-org.ezproxy.callutheran.edu/10.1037/ppm0000133>
- Techopedia. (2017, February 23). What is a Social Networking Site (SNS)? Retrieved from <https://www.techopedia.com/definition/4956/social-networking-site-sns>
- Tortorello, M. (2019, March 7). How to raise a child without imposing gender. *The New York Times*. Retrieved from <https://www.nytimes.com/2019/03/07/style/gender-neutral-design-child.html>
- van den Berg, P. A., Mond, J., Eisenberg, M., Ackard, D., & Neumark-Sztainer, D. (2010). The link between body dissatisfaction and self-esteem in adolescents: Similarities across gender, age, weight status, race/ethnicity,

- and socioeconomic status. *Journal of Adolescent Health*, 47(3), 290–296.
<https://doi-org.ezproxy.callutheran.edu/10.1016/j.jadohealth.2010.02.004>
- Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, 36(3), 1–48.
<http://www.jstatsoft.org/v36/i03/>
- Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, 3(4), 206–222. <https://doi-org.ezproxy.callutheran.edu/10.1037/ppm0000047>
- Voges, M. M., Giabbiconi, C.-M., Schöne, B., Waldorf, M., Hartmann, A. S., & Vocks, S. (2019). Double standards in body evaluation? The influence of identification with body stimuli on ratings of attractiveness, body fat, and muscle mass. *Eating and Weight Disorders*, 24(6), 1173–1180. <https://doi-org.ezproxy.callutheran.edu/10.1007/s40519-017-0450-5>
- Warren, C. S. (2014). Body area dissatisfaction in White, Black and Latina female college students in the USA: An examination of racially salient appearance areas and ethnic identity. *Ethnic and Racial Studies*, 37(3), 537–556. <https://doi-org.ezproxy.callutheran.edu/10.1080/01419870.2012.716520>
- Weingarten, E. (2015, January 20). How to shake up gender norms. *Time*. Retrieved from <https://time.com/3672297/future-gender-norms>
- Wickham, H., & Grolemund, G. (2017). R for Data Science: Import, Tidy,

Transform, Visualize and Model Data. Sebastopol, CA: O'Reilly Media, Inc.

Wickham, H., François, R., Henry L., & Müller, K. (2018). dplyr: A Grammar of Data Manipulation. R package version 0.7.7.
<https://CRAN.R-project.org/package=dplyr>

Wright, E. J., White, K. M., & Obst, P. L. (2018). Facebook false self-presentation behaviors and negative mental health. *Cyberpsychology, Behavior, and Social Networking*, 21(1), 40–49. <https://doi-org.ezproxy.callutheran.edu/10.1089/cyber.2016.0647>

Yang, K. C., Varol, O., Davis, C. A., Ferrara, E., Flammini, A., & Menczer, F. (2019). Arming the public with artificial intelligence to counter social bots. *Human Behavior and Emerging Technologies*, 1(1), 48–61. <https://doi-org.ezproxy.callutheran.edu/10.1002/hbe2.115>