Correlation Between Social Media Use and Eating Disorder Symptoms: A Literature Review

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Abstract

Importance: Social media is a pervasive influence in modern society presenting many potential public health implications.

Objective: The purpose of this literature review is to synthesize current research regarding social media and eating disorders.

Methods: Primary research was gathered from Google Scholar and OneSearch database resulting in 7 articles. Articles were examined for common themes.

Results: Common themes found in the resulting research is the prevalence of ‘thinspiration’, gamified content, and overlap of eating disorders with other mental illnesses. Several articles found a significant correlation between social media use and the severity of eating disorder symptoms.

Conclusion: This correlation incites that social media use could be a risk factor in the development or severity of eating disorders in many populations. Social media habits should be considered in the prevention and treatment of eating disorders. Future research should explore this correlation in different demographics and consider a causal relationship between social media use and eating disorder symptoms.

Key Words: eating disorder, social media, body comparison, thinspiration
Introduction

Over the last decade, social media has become increasingly embedded in life as a means for entertainment and connection. In the last few years, individuals have relied even more on these platforms to stay connected during the pandemic. Due to the newness of social media, the long-term impacts of engaging with these platforms are an important area of current research.¹ With dozens of platforms and billions of users, social media is a widespread phenomenon that has developed and changed faster than research can keep up. It is important to understand how social media can influence the lives of those who use it in order to reduce potential negative impacts. This information is especially important for younger populations, as most social media platforms allow users to join at the age of 13 years.² The public health implications of social media are an emerging area of research attempting to understand the dangers of this new technology.¹

Image-based social media platforms such as Tumblr and Instagram have been popularly used since their beginnings in 2007 and 2010 respectively.² The rise of image-based social media platforms has created concerns about the psychological effects that could arise. One of the main concerns involves frequent body comparison facilitated by image-based social media and high rates of eating disorder (ED) pathology in young people.³

The purpose of this literature review is to synthesize the current research regarding the correlation between social media use and eating disorder symptoms in attempt to answer the following questions:

(a) What is the type of content related to eating disorders being posted on social media found through content analyses?
(b) What is the correlation between engagement with social media and eating disorder symptoms found in current observational research?

Methods

Initial searches for literature were conducted on GoogleScholar and the CSU libraries’ research platform, OneSearch, which includes publications from 224 databases. Filters were applied to narrow the results to only peer-reviewed articles published from 2017 to 2022. The search terms “social media” and “eating disorder” were combined to find relevant articles. The resulting articles were then screened for relevance to the research question and qualification within the inclusion criteria.

Inclusion Criteria

In order to focus the scope of the found research, articles were selected using the following criteria: (a) articles must be peer-reviewed, original research examining the relationship between image-based social media platforms (i.e. Instagram, Tumblr, Twitter, etc.) and eating disorder pathology; (b) the population researched must include a majority of the participants within the age range 13 to 27 years; (c) articles must have been published no earlier than 2017 and be written in English language. Articles that do not fit these criteria were excluded from this literature review.

To complete this systematic review, all of the relevant articles were examined to discover common themes and key findings among the research in order to synthesize the known information regarding the topic of social media use and ED symptoms.

Results

This resulted in 7 articles of published primary research examining social media and eating disorders listed in Table 1. There was limited current research that examined both social
media and eating disorders. The majority of the found research conducted cross-sectional surveys or content analyses. There appears to be a lack of other types of study designs in this area of research.

The content analyses revealed common themes of ED content posted on social media. The first theme was ‘thinspiration’ or ‘thinspo’. These terms combine the words thin and inspiration and often involve images of excessively thin bodies meant to glorify disordered eating behaviors. The second theme was gamified posts. Gamified posts encourage users to interact by liking or commenting. The third theme was pro-ED posts overlapping with content of other mental health comorbidities, most commonly depression, self-harm, and suicide.

In a content analysis of Instagram posts, researchers gathered posts for a 7-day period using the most common pro-ED hashtags. Out of the 7560 images gathered, 25% fit within the category of thinspiration, 4% fit in the category of gamified posts, and 9% fit within the category of overlap with other illnesses.

A similar content analysis examined ED-related posts on Twitter. Researchers gathered all posts from one month that fell under 23 different ED-related hashtags resulting in a sample of 28,642 tweets. In this sample, 51% of the tweets depicted thinspiration, including images focused on excessively thin bodies or body parts. Researchers notably determined that the demographic posting this content was predominantly teen girls, a significant difference from the overall demographic of the platform.

The cross-sectional studies examined correlations between social media use within their respective populations and symptoms of ED pathology. All cross-sectional studies found a correlation between social media use and ED behaviors.
A cross-sectional survey advertised to females aged 15-25 resulted in 409 participants answering questions about disordered eating behaviors, mental health, social media habits, and history of ED treatment. Due to the recruiting practices, 96% of the participants engage with pro-ED content on social media. The survey included the Stanford-Washington Eating Disorder (SWED) screening tool to determine probable subclinical or clinical diagnosis. This screening tool found that 84% of the participants met the criteria for a probable diagnosis. Additionally, 71% of the participants met the criteria for severe depression and 65% for severe anxiety as determined by a screening tool for mental health comorbidities. Only 14% of participants had received any treatment in the last 6 months.

Similar research conducted across 13 Australian schools surveyed 4,209 students aged 11-19. Researchers used the EDE-Q screening tool in the survey to determine probable ED diagnosis. Participants were surveyed about their frequency of social media use. Researchers found that 21.6% of participants met the criteria for at least one ED. A significant association was found between the social media behaviors of posting avoidance, photo manipulation, and investment in others’ photos with increased risk of meeting the criteria for all EDs.

Research advertised to sexual minority men in Australia through popular dating apps and national text messages surveyed about the frequency of social media use, ED symptoms, body dissatisfaction, and anabolic steroid use. The survey utilized the EDE-Q screening tool for ED diagnosis and the Male Body Attitudes Scale-Revised to measure body dissatisfaction. Researchers found a significant association between frequency of social media use and ED symptoms and body dissatisfaction. This association was stronger with image-based social media platforms but also present in non-image-based platforms.
The final cross-sectional survey examined a younger age group, recruiting participants in grades 7 and 8 from Australian private schools. The average age of the participants was 13.08 years and the survey participants were 53% female. This survey utilized the EDE-Q screening tool for probable ED diagnosis as well as the Project EAT screening tool for disordered eating behaviors. The survey also asked about the participants’ social media use including number of platforms used, posting behaviors, and frequency of use. Researchers found that 51.6% of girls and 45.0% of boys met the criteria for at least one disordered eating behavior. Researchers found a significant association between the number of social media accounts participants had with the number of disordered eating behaviors, concluding that increased social media use increased the risk of EDs.

Utilizing a cross-sectional survey, researchers created a proposed model for how social media use can lead to increased ED symptoms. The researchers specifically looked at exposure to thinspiration on social media and the subsequent increase in disordered eating behaviors. The survey included a sample of 228 participants (93% female) with EDs and included questions about image-based social media use, thinspiration and fitspiration exposure, body comparisons, and severity of ED symptoms. Using the results of this study, the researchers concluded that the mechanism of increased severity of ED symptoms after exposure to thinspiration is body comparison. The researchers found that higher social media use caused increased exposure to pro-ED and fitness content, both leading to increased body comparisons. Increases in the severity of ED symptoms were stronger after exposure to thinspiration compared to fitspiration.

Discussion

The research examined in this literature review provides a strong argument that social media has an impact on ED pathology in many populations. A common strength in the examined
studies was the use of reliable screening methods for determining probable clinical or subclinical diagnosis of EDs. The studies utilize the EDE-Q or the SWED screening tool for diagnoses. Both screening tools have been shown to give reliable results matching clinical diagnoses for EDs.\textsuperscript{11,12} The use of these screening tools within the research improves the reliability of the results as the screening tools are more accurate than self-reported data.\textsuperscript{11,12} The information from the screening tools allows the researchers to make more reliable claims about social media’s correlation to EDs.

Research among two different populations came to the same conclusion regarding social media use and ED symptoms. After surveying 996 grade 7 and 8 students, researchers found that the frequency and number of disordered eating behaviors were positively correlated with the number of social media accounts participants had.\textsuperscript{10} Similar survey research concluded that increased social media use is positively correlated with greater ED symptoms in a population of sexual minority men.\textsuperscript{9} In the population of 996 middle school adolescents surveyed, 51.6\% of females and 45.0\% of boys displayed at least one disordered eating behavior.\textsuperscript{10} The average age of this sample group was 13.08 years. Thirteen is the most common age requirement for starting an account on social media platforms and is within the range for populations most vulnerable to developing an ED.\textsuperscript{13} The conclusion that increased social media use is a high risk for ED behaviors implies a major public health implication for this age group.

However, neither of these articles distinguished the type of content the participants were engaging with on social media. In a study looking specifically at a population that engages with body image content on social media, the number of participants that met the criteria for an ED diagnosis jumps to 84\%.\textsuperscript{7} This reveals that specific social media content might play a large role in the relationship between social media use and rates of EDs. This study recruited participants
directly from body-image content spaces on social media, resulting in 96% of the participants engaging with body-image content. Use of a control group would be beneficial in determining if engagement with pro-ED content is the reason this participant group had such a high rate of probable diagnoses.

Current research regarding social media use and ED correlation is limited to cross-sectional survey designs. While each article finds a strong correlation between certain types of social media use and disordered eating patterns in their studied populations, the study designs limit the researchers’ ability to determine the cause of this correlation. One study attempts to understand the causal aspects of this relationship by proposing a model for the connection between social media use and disordered eating behaviors. They conclude that the connection between social media use and increased disordered eating behaviors is the act of body comparison when engaging with thinspiration or fitspiration content. Increased social media use leads to users more frequently comparing their bodies with those seen on social media, which could explain increased ED behaviors. This hypothesized mechanism might help explain why the rate of EDs is so much higher in populations that engage with body image or pro-ED content on social media. This indicates that the type of content on social media is an important aspect of the relationship between social media use and ED symptoms.

Type of Content Related to Eating Disorders on Social Media

Pro-ED communities have existed on the internet for decades and have thrived on newer image-based social media platforms such as Instagram, Tumblr, and Twitter. On these newer platforms, the addition of hashtags allows pro-ED content to be easily found, shared, and followed. Easy access to this type of content combined with each platforms’ algorithms creates ‘echo chambers’. Echo chambers in pro-ED online communities simultaneously confirm ED
beliefs and behaviors while “discrediting voices outside the community”. Individuals who find themselves in pro-ED echo chambers are interacting with content that encourages behaviors that can be dangerous if users actually engage in these actions in their off-screen lives.

A new development on these platforms is the growing overlap between pro-ED content and fitness or weight loss inspiring content, often referred to as ‘fitspo’. Fitspo, a combination of the words fitness and inspiration, is defined as “depictions of overly fit and lean bodies with visible muscle tone”. One article incites that fitspo content is guided by the same themes of motivating weight loss as thinspiration. One major similarity between fitness and ED content is the gamification of posts. Gamified content encourages users to engage in certain behaviors, whether it be fasting or exercise. An example of this is images posted with text stating “1 like = 10 sit ups”. Gamification of ED content is problematic due to the competitive nature of EDs. Eating disorders often involve strict self-control in limiting food and over-exercising and this type of behavior leads to intense competitiveness with one’s self and others struggling with the same ED. This content overlapping with similar fitness weight loss promotion provides a pathway for disordered habits to be encouraged and normalized under the false pretense of fitness rather than an ED. A study surveying US females ages 15-25 found that of the participants with clinical or subclinical EDs, only 14% had received treatment in the last 6 months. Where pro-ED content is more obvious, fitspo content disguises similar disordered habits and encourages body comparison in a more subtle way. In a proposed model, researchers concluded that fitspiration does not lead to as severe of ED symptoms as thinspiration, but the correlation was still significant. If pro-ED content continues to transition into fitspo, it could result in fewer diagnoses and treatment, which is already low in most populations. While this is concerning development, due to the design of the content analyses used in this literature review,
it is not known if those posting and interacting with this content are actually engaging in these behaviors in their off-screen lives. However, the survey research done in a population of females that interact with this content did find that 84% met the criteria for at least one ED.7

Another emerging theme found in pro-ED content posted on Instagram and Twitter is co-existence with other mental illnesses. Many posts contained overlapping messages with EDs and depression, self-harm, and suicide.5,6 A content analysis of Instagram posts tagged with pro-ED terms found that 9% of the images contained graphic themes of depression, self-harm, and suicide.4 This number increases with specific hashtags such as #starve, which had 44.2% of posts linked with depression and 41.6% linked with self-harm and suicide.5 The study design does not provide information about whether the users posting this content have diagnoses, however, research in a population of women who engage with this content found that 71% of the participants met the clinical criteria for severe depression and 65% for severe anxiety.7 The overlap of pro-ED content with other comorbidities can expose people who engage with it to even more potentially harmful content, normalizing extremely dangerous behaviors.

The authors of the Instagram content analysis concluded that despite the potential harm pro-ED content and communities have, increased visibility of EDs on social media is a good development.5 They concluded this because these spaces create a community for people struggling and increase conversations about what they believe is the underlying cause of many EDs: the confines of the female gender.5 Concluding that pro-ED spaces on social media are beneficial due to the potential to contest gender norms could minimize the harmful impacts individuals influenced by this content face. While pro-ED communities may bring more awareness to the disorder by encouraging conversations, the cumulative findings of other research indicate that it is likely doing more harm than good. Even without specifically engaging
with pro-ED content, research shows that increased social media use correlates with higher rates of EDs. Eating disorders have the highest morbidity rate of any other psychological disorder and social media spaces that encourage dangerous behaviors should be a concern of the healthcare community. The correlation found between social media use and ED symptoms should be carefully considered by healthcare professionals who work in prevention and treatment of EDs.

Suggestions for Future Research

The biggest limitation of the current research appears to be the reliance on cross-sectional study designs. Many of the articles included in this review found correlations between social media use and ED symptoms, however, they were not able to determine a causal relationship due to the study design. Similarly, the content analyses show potentially dangerous online habits, but cannot determine the actual behaviors of those posting or interacting with the content. Eating disorders are complex, competitive illnesses and social media could have the power to exacerbate or potentially cause symptoms. Future research should focus on examining if there is a causal relationship between social media use and ED symptoms. Determining a causal relationship could allow healthcare workers, parents, and users to make social media a safer space for those vulnerable to developing EDs.

The majority of current research regarding this topic has been done in predominantly white, female populations. There is a need for further research to understand the relationship between social media use and ED symptoms in underrepresented demographics, mainly, non-white and non-female populations. Only one study acknowledged the socioeconomic status of the participants, which is another factor that should be considered.

The nature of social media is fast changing making it difficult for research to remain current. All the research included in this study was conducted within the last 5 years, but social
media is ever changing. None of the articles mention new social media platforms that have gained popularity in recent years such as TikTok. Pro-ED communities have a pattern of shifting to new platforms as they emerge. New platforms like TikTok should be included in future research.

**Conclusion**

This literature review aimed to synthesize current research regarding pro-ED content on social media and the correlation with ED symptoms in users. Common themes found in pro-ED content on social media included thinspiration, gamified content, and overlap with other mental health comorbidities. Multiple researchers found a significant correlation between social media use and ED symptoms in the populations studied, concluding that increased social media use increases the frequency and severity of ED symptoms. A strong association was found between interaction with pro-ED content and probably diagnosis of at least one ED. The proposed mechanism of this correlation is users engaging in increased body comparison while using social media. This correlation suggests that social media should be taken into consideration during prevention and treatment of EDs. Further research should be conducted to explore a causal relationship between social media and ED symptoms.
References


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### Table 1: Summary of results from primary research.

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Study Design/Population</th>
<th>Methods</th>
<th>Measures</th>
<th>Significant Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitzsimmons-Craft et al.(^6) 2020</td>
<td>Cross-Sectional Survey of 409 females aged 15-25 years in the United States.</td>
<td>Participants were recruited through surveys on social media using common pro-ED tags and websites.</td>
<td>SWED screening tool for probably clinical or subclinical eating disorder diagnosis. EDQOL screening tool for mental health comorbidities. Survey of social media habits, treatment history, and barriers to treatment.</td>
<td>96% of participants interacted with body image content that emphasized a thin ideal on social media. 84% of participants met the SWED criteria for a probably clinical or subclinical eating disorder diagnosis. 71% of participants met the EDQOL screening criteria for severe depression (76% of 15-17 year olds.) 65% of participants met the EDQOL screening criteria for severe anxiety. 14% of participants received treatment within the last 6 months.</td>
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<tr>
<td>Longeman et al.(^8) 2020</td>
<td>Cross-Sectional Survey including 4,209 Australian students (53% female) aged 11-19.</td>
<td>Participants were recruited from 13 Australian high schools.</td>
<td>EDE-Q screening tool for eating disorder diagnosis. Survey of frequency of specific social media behaviors.</td>
<td>21.6% of participants met the EDE-Q criteria for at least one eating disorder. Association found between specific social media behaviors (avoidance of posting selfies, photo investment, photo manipulation, and investment in other’s selfies) and increased odds of meeting criteria for all eating disorders.</td>
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<tr>
<td>Griffiths et al.(^9) 2018</td>
<td>Cross-Sectional Survey including 2,733 sexual minority Australian men in an age range of 18-78 years old.</td>
<td>Participants were recruited through a popular dating app exclusively for sexual minority men and through text advertisements sent in Australia and New Zealand.</td>
<td>EDE-Q screening tools for eating disorder diagnosis. Frequency of social media use based on platform. Male Body Attitudes Scale-Revised was used to measure body image dissatisfaction</td>
<td>Increased frequency of social media use was associated with increased body dissatisfaction and eating disorder symptoms. This association was stronger with image-based social media.</td>
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<tr>
<td>Study</td>
<td>Type of Study</td>
<td>Methodology</td>
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<tr>
<td>Wilksch et al. 2020</td>
<td>Cross-Sectional Survey</td>
<td>Participants were recruited through five private schools in Australia. EDE-Q was used for eating disorder diagnosis. Project EAT questionnaire was used for disordered eating behaviors. Social media use was surveyed for frequency, the number of accounts, and type of content posted.</td>
<td>51.6% of girls and 45.0% of boys had at least one disordered eating behavior. Study found a strong association between the number of social media accounts and the number of disordered eating behaviors.</td>
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<tr>
<td>Ging and Garvey 2017</td>
<td>Content analysis of pro-eating disorder content on Instagram.</td>
<td>Researchers used an Instagram web browser to collect sample image posts from pro-eating disorder hashtags (#ana, #starve, #fasting) for a week. The data was coded to be categorized into the 9 thematic categories identified by the authors. These categories were used to create percentages of each type of content within the whole sample.</td>
<td>25% of the 7560 images collected depicted thinspiration content. 4% of the images were gamified content. 9% were pro-eating disorder content overlapping with depression, self-harm, and suicide. The percentage of content associated with depression was 44.2% under the specific hashtag #starve.</td>
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<tr>
<td>Cavazos-Rehg et al. 2019</td>
<td>Content analysis of pro-ED content on Twitter</td>
<td>Researchers gathered tweets under 23 common pro-ED hashtags for a one-month period using an external tracking website. A random sample of 3,000 tweets were taken from the overall sample and coded by themes identified by the authors. Using this sample, percentages of each theme were determined for the total number of tweets.</td>
<td>13,450 tweets fell into the category of image-based thinspiration. Only 23% of the tweets did not express an eating disorder symptomology. 90% of the users were determined to be female. 73% were 17-19 years old (only 5% older than 25) which is a significantly different demographic than the platform Twitter as a whole.</td>
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<tr>
<td>Griffiths et al. 2018</td>
<td>Cross-sectional survey of participants with EDs to propose a model for</td>
<td>Participants with current EDs were surveyed. Use of the EDE-Q screening tool for eating disorder</td>
<td>Image-based social media use was significantly associated with dissatisfaction with height, muscles, and body fat.</td>
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exposure to thinspiration/fitspiration and ED symptoms. Social media use, thinspo/fitspo exposure, body comparisons, and ED symptoms. Descriptive statistics were used to create the proposed model out of the survey data. Researchers concluded that body comparison is the mechanism that connects social media use and increased ED symptoms with more frequent exposure to thinspo and fitspo. Exposure to thinspo and fitspo were both significantly correlated with increased ED symptoms (thinspo had a higher correlation than fitspo).